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BANKS DENY IT. Consumers fear it. But online merchants are the real victims of Internet credit-card fraud. Criminals use stolen credit-card numbers to ring up online purchases, and guess who's stuck with the bill? "There were days when we had more fraud than legitimate sales," one chief technology officer says, but law enforcement officials weren't interested. *Computerworld* writer Cynthia Morgan examines the scams and shows how savvy webmasters can protect themselves. *See report, page 24.*

NOVELL'S FULL-SERVE STRATEGY

Next generation of NDS will manage everything from apps to personal IDs

BY SHARON GAUDIN

Novell Inc. will make several announcements this week in an effort to move beyond the network directory arena and positioo itself to manage everything oo the enterprise from users to applications to personal IDs, *Computerworld* has learned.

"In 1999, having a central directory is growing in importance. In 2002 or 2003, if you doo't have a good enterprise directory in place, you're going to have lots of troubles. You just won't be able to manage all that," said Bob Sakakeeny, an analyst at Boston-based Aberdeen Group Inc.

The announcements fit snugly into Novell's shift in emphasis to the directory market. That approach has propelled the company from financial and market turbulence only a few years ago back to the top of its game, industry watchers said.

The plan is to build a full-service directory — something analysts and users said large companies woo't be able to do without in three to four years.

Novell, in Provo, Utah, will announce Version 8.0 of its popular Network Directory Services, expected to ship in 12 to 18 months. The upgraded NDS is being designed to do the following:

■ Manage a half-billion objects, compared with the slightly

Novell, page 97

Vote of Confidence

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SOURCE: COMPUTERWORLD IT INTELLIGENCE UNIT, FRAMINGHAM, MASS.

HP BREAKUP ADDRESSES FOCUS ISSUE

Users seek consistent message, IT strategies

BY JAIKUMAR VIJAYAN

Last week's surprise announcemeot of an impending breakup of $47.1 billion Hewlett-Packard Co. into two separate entities should help foster a more focused HP computer business. Although they endorse the divorce, users and analysts said they expect it will be some time before the impact ripples down to the customer base.

That's because many of the issues relating to HP's acknowledged lack of a cohesive IT marketing and technology message lie within the computer organization itself. Simply spinning it off into a separate company will do little to resolve those issues.

Tying together its disparate informatioo technology products and strategies into a simple, easily understood strategy will help, users and analysts said.

Splitting up the company makes strategic sense for HP — and ultimately for users — because it means HP can focus

HP, page 16

COMPUTING-MAKING COMPANY

Name: Hewlett-Packard Co.

Business: Enterprise hardware, software: PCs and printers

MEASUREMENT COMPANY

Name: To be announced

Business: Systems for testing, measurement and chemical analysis, components and medical instruments

FORD SUPPLIERS GET CALL TO DESIGN

Savings drive push to outsource engineering

BY BOB WALLACE

Io its quest to cut costs while improving vehicle quality, Ford last week confirmed that it's outsourcing more than half its new auto design work to parts suppliers. The automaker also plans to require all future suppliers on new car projects to join the initiative.

Ford Motor Co. has teamed with Structural Dynamics Research Corp. to link several hundred suppliers around the globe to the automaker's computer-aided design and manufacturing and computer-aided engineering system so they can participate in what has become an interactive vehicle design process.

"By outsourcing to suppliers, we get expertise in design-

Ford, page 97

HEALTH INDUSTRY POSTS Y2K GUIDE

Contingency plan aids millennium laggards

BY BARB COLE-GOMOLSKI

Computerworld has learned that a group of health care giants this week will unveil a plan that could keep hospitals functioning if the millennium bug disrupts their systems.

The group's plan is that by making those recommendations available for free on its Web site (*www.odin-group.com*) and via industry groups, it will help health care providers that are behind in their year 2000 projects.

Health Y2K, page 16

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DNS Discovery	✓	
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Frame Relay Service Option	✓	
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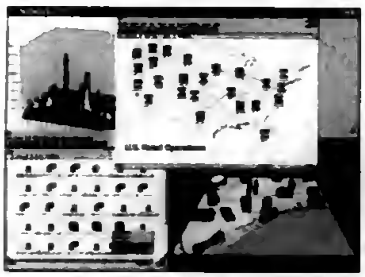
Performance Scope	✓	✓
Built-in RMON Analysis	✓	



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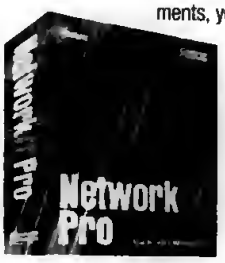

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GRAPE EXPECTATIONS

Wineries small are adopting technology
business – and their crops –
See page 48

PRETTIER PCs

Intel's planned onslaught of PC advantages may be more than IT can (or needs to) keep up with. One goal is smaller, more attractive machines, such as these Ziba Design PCs. For a full rundown on Intel's plans, see page 68.

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Sure, it's all over TV and the news, but Linux is still just software, Frank Hayes writes.

AT DEADLINE

Air-Traffic Control Upgrade Late

The U.S. Federal Aviation Administration's air-traffic control modernization project is six years behind schedule and $100 million over budget, the agency conceded last week. The 4-year-old project is expected to cost more than $1 billion and take 15 years to complete. Separately, the FAA said it expects to finish all year 2000 certification by July.

Think Tank on Y2K Law Formed

A new group has formed to address year 2000 legal issues. It's composed of professors from 175 top universities, members of U.S. and U.K. think tanks, individual consultants, law firms and other professional services firms. Round Table Group Inc., a consortium of consulting professors in Chicago, initiated the effort.

Raytheon Seeks Online Users' IDs

Defense contractor Raytheon Corp. in Lexington, Mass., has gone to court to get Yahoo Inc. in Santa Clara, Calif., to turn over the identities of 21 message-board handlers who Raytheon believes – but can't prove – are Raytheon employees discussing confidential company information. Spokesmen for Yahoo, which hosts the boards, declined to comment.

Short Takes

Paris-based telephone equipment maker ALCATEL SA last week agreed to acquire LAN switch and WAN products vendor XYLAN CORP. in Calabasas, Calif., for about $2 billion. . . . MICROSOFT CORP. plans to ship by midyear a service pack that, among other things, will prevent Windows 95/98 PCs from freezing after 49.7 continual days of operation. . . . Linux hardware, software and services vendor VA RESEARCH INC. plans to build a portal site around its newly acquired Web address (www.linux.com). It will use DecisionOne Corp. to provide on-site service.

IS TIME ON INTEL'S SIDE IN FTC TRIAL?

Some say changes in PC landscape since FTC filed suit aid chip maker's defense

BY STACY COLLETT

As INTEL CORP prepares to face off against the Federal Trade Commission (FTC) in court tomorrow, observers say changes that have occurred in the PC industry since the suit was filed last June will work in Intel's favor.

For example, in January Intel was knocked out of the No. 1 position in desktop PC processors by Advanced Micro Devices Inc. (AMD) in Sunnyvale, Calif. AMD's chips now reside in 44% of all U.S. PCs sold — as compared with Intel's 40%.

And resellers for the company's products have been boldly stepping up to the plate to demand changes in some system components.

Humbled

Meanwhile, some observers say Intel toned down its market-leader arrogance after it was sued by Huntsville, Ala.-based Intergraph Corp. more than a year ago for allegedly cutting off the workstation maker from technical information and chip prototypes after Intergraph demanded royalties for its intellectual property.

"The market dynamic is changing," said Rob Enderle, an analyst at Giga Information Group Inc. in San Jose, Calif., who added that Intel is now feeling the heat of competition in the microprocessor market.

When dealing with monopoly cases, antitrust guidelines consider the ease of entry that competitors have in the market and how quickly the industry's technology is changing.

"What often looks like a position of insuperable market power may be undercut because technology just leapfrogs," said Tyler Baker, an attorney and former lawyer at the Department of Justice antitrust division.

It's also helpful — although antitrust and intellectual property rights are well-established — that the question of how to apply these laws in the high-tech industry, where the principal asset is knowledge, is unchartered territory, according to Baker.

The FTC alleged in a suit filed last year that Intel monopolized the market for microprocessors by withholding the right to use its intellectual property from three companies — Digital Equipment Corp. in Maynard, Mass., Compaq Computer Corp. and Intergraph — after the three companies had either sued or threatened to sue Intel for patent infringements.

In its pretrial brief, Intel used the government's economic expert's testimony to bolster its assertion that its actions didn't affect research or market prices. Attorneys for the chip maker will further contend that Intel didn't violate antitrust laws when it withheld information from customers and that even if it holds a dominant market position, there is room for competition.

But in a brief filed last week, the FTC countered that advances by AMD and other competitors fall mostly in the low-end PC market, where profits are small. Intel dominates the high end. Also, about 85% of the world's PCs run on Intel chips, despite the loss of U.S. market share.

To date, the FTC has shown fewer examples of Intel's exclusiooary behavior than government lawyers did in Microsoft Corp.'s antitrust trial. But, like the Justice Department's case, more evidence may come to light in the course of discovery, Baker said.

Industry watchers don't expect the same smoking-gun e-mails and explosive videotape that rocked the Microsoft trial. "The typical FTC remedy is a cease-and-desist," said Paul Rogers, professor of antitrust law at Southern Methodist University in Dallas.

The commission can also provide guidelines for future behavior. But the more dramatic the remedy, the more likely the case will be reversed on appeal at the federal circuit court level, Baker said. ◗

FTC VS. INTEL

Key Players

James Timony: FTC administrative law judge

Peter Detkin: Intel vice president and assistant general counsel

William Baer: FTC director

Andrew Grove: Intel chairman

Craig Barrett: Intel CEO (left)

Robert Palmer: Former CEO at Digital

MORE THIS ISSUE

Intel hopes faster notebook chips will persuade corporate customers to buy more notebooks, fewer desktops. **see page 68.**

Cendant Will Book Linux Into 4,000 Hotels

Hotel franchisor eyes low cost, stability of Linux, but says it has its drawbacks

BY DAVID ORENSTEIN

Cendant Corp., the world's largest franchisor of hotels, is rolling out Linux servers at about 4,000 hotels to run the company's hotel management software.

Cendant, whose hotels include Days Inn and Ramada, began the massive rollout early last year and expects to finish in September, said project technical lead Damon Covey.

Most companies are only now becoming aware of Linux, a Unix variant distributed for free or at nominal cost. Few rollouts on this scale have occurred or are planned.

Although Linux's low cost helped influence the franchisor's decision to use it, the operating system's highly regarded stability is what made the sale, Covey said. He also cited the "ease with which you can make the system Internet-ready."

The servers, running Caldera Systems Inc.'s OpenLinux Version 1.1, will deliver the applications to Windows 95 desktops running a terminal-emulation program. The hotel management software runs all facets of each hotel's operations and integrates with Cendant's central reservation system, Covey said.

The rollout is proceeding on schedule, but Covey said the company has learned that working with Linux can sometimes be difficult. After IBM switched the video card in its PC300GL line of PCs, for example, Cendant couldn't find a Linux driver that would make the display work properly. Also, installing application software isn't as easy as on other operating systems, he said.

"Linux is flexible in some areas and archaic in other areas," Covey said. "Until we can do the same things on Linux as we can on Windows 95 with relative ease of use, I'm not sure Linux will ever reach its full potential."

Linux's less-mature setup infrastructure increases the upfront work required to deploy an application, said Andrew Allison, an independent analyst in Carmel, Calif., but companies find the struggle worthwhile because Linux is more stable than Windows NT. ◗

MORE THIS ISSUE

To read more about Linux, see the articles on **page 12.** Also, turn to **page 34** to find out why Dan Gillmor thanks IT executives should pay close attention to the Linux vanant, and discover the secret about Linux that Frank Hayes reveals on **page 74.**

"At Sony, we installed
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Scarcity of AS/400 Resources a Concern

Talent, apps for IBM system in short supply

BY JAIKUMAR VIJAYAN

Growing concerns about programmer and application availability could dampen some of the enthusiasm surrounding the IBM AS/400's continued popularity at this week's Common user show in San Francisco.

In an international survey conducted by Common (an AS/400 group) asking users to list their top worries in 1998, those two issues ranked as the biggest user concerns.

"Total cost of ownership is probably the biggest selling point of the AS/400, but how can that cost remain low when salaries continue to skyrocket due to a lack of available talent?" asked Dean Asmussen, president of Enterprise Systems Consulting Inc., a longtime AS/400 user and consultant in Fuquay-Varina, N.C.

Similarly, there are few new RPG/Cobol packaged applications to replace old packages across most of the AS/400 segments, such as manufacturing, distribution and retail, according to IBM.

Although labor constraints also are being felt in other areas, "the AS/400 adds a wrinkle in that . . . there aren't that many new RPG developers coming out of the technical schools or universities," said Michael Crump, a technical project leader at Ball-Foster Glass Container Corp. in Muncie, Ind.

And those in the field are getting paid more. Figures from Nate Viall and Associates, an AS/400 recruiting firm in Des Moines, Iowa, show that average AS/400 programmer salaries grew by 6.8% to $47,200 last year.

Added to that are concerns about application availability. Many customers looking to fix year 2000 issues by replacing old AS/400 applications discover that there aren't many packaged options available and that they need to develop new applications or modify existing ones, said Walt Ling, vice president of AS/400 customer satisfaction at IBM. And many of the new packages require moving to Java, Windows NT or Unix application development environments, Ling said.

IBM's efforts to address those issues include the Partners in Development program, designed to encourage software vendors to port new applications to the AS/400.

A program to get universities to teach AS/400-related courses launched in 1996 now has 400 participating schools, Ling said.

And the AS/400 continues to rack up sales. Expected AS/400 hardware revenue of $3.6 billion this year should represent a 10% growth compared with 1998, according to Salomon Smith Barney in New York.

MORE ONLINE

For AS/400 resources such as publications, user groups, organizations and mailing lists, visit our Web site
www.computerworld.com/more

SENATE Y2K PANEL APPLAUDS FIRMS' IRON-FIST APPROACH

Nestle, Kroger cited for taking extra steps

BY PATRICK THIBODEAU
WASHINGTON

FOOD GIANT Nestle USA Inc. has been contacting shipping companies both in the U.S. and abroad, warning them that they have to demonstrate year 2000 compliance by May — or else.

The Kroger Co. isn't assuming its 1,400 grocery stores and 34 manufacturing plants will have electric power on Jan. 1, 2000. Company officials are going door-to-door to local utilities to examine their plans for exterminating the millennium bug.

Both Kroger and Nestle won praise last week from the U.S. Senate Special Committee on the Year 2000 Technology Problem because of the get-tough steps they have taken to address the date rollover problem. Committee Chairman Sen. Robert Bennett (R-Utah) urged companies to be more aggressive in finding out how year 2000 will impact them — and not just rely on survey data. Committee members were openly skeptical of the survey data that industry groups and trade associations have been bringing them. "People want to hide things; people want to be overly optimistic," Bennett said.

JUST THE FACTS

The Senate's **160-page report** *on the year 2000 problem is* **available** *at* www.senate.gov/~y2k/index.html.

"For anybody who really counts on Nestle as we count on particular suppliers, a survey isn't enough," said Jeri Bender, CIO of the Glendale, Calif.-based company. Nestle is relying on face-to-face meetings and demonstrations of year 2000 compliance from key partners, she said.

Michael Herschel, executive vice president of information systems and services at Cincinnati-based Kroger, said the company is conducting testing with key partners. Also, officials from various company locations are personally contacting local utilities to make sure "we feel comfortable" with their year 2000 plans, he said.

Vague Warnings

The Senate committee last week released a 160-page report that offers only general assessments about the impact of year 2000 computer glitches in various vertical industries. For instance, in examining electric utility readiness, the report warns of "possible" outages at some of the nation's 3,200 utilities.

The report is more alarming when it covers international concerns. Flight rationing "is highly possible" for some foreign destinations and disruptions to global trade are "highly likely," it said.

MORE ONLINE

For resources and links related to year 2000 compliance and supply-chain issues, visit our Web site.
www.computerworld.com/more

Unisource: Takeover Unlikely to Squelch IT, ERP Makeover

Plans to shut down R/3 apps will proceed

BY CRAIG STEDMAN

The wild ride continues for Unisource Worldwide Inc. and its IT staff.

A year ago, the $7 billion paper distributor scrapped a $168 million SAP R/3 project. Then it began a sweeping makeover of its homegrown systems last summer. And last week, Unisource said it agreed to be bought by an energy company in a $1.5 billion deal.

At least for now, the planned sale to UGI Corp. isn't expected to derail the information technology overhaul at Berwyn, Pa.-based Unisource, which is consolidating systems and moving more processing to a new corporate data center.

The revamp, part of a wider restructuring aimed at cutting costs by $150 million per year, also includes a decision announced internally last month — and confirmed by a Unisource spokeswoman — to shut down R/3 order-processing and logistics applications being used at Unisource's Philadelphia customer service center.

That will bring down the final curtain on what was to be a rollout of the SAP AG software at all 11 of Unisource's regional order-taking facilities.

The Unisource spokeswoman said it's "just premature at this point" to talk about a long-term technology strategy under UGI. Unisource CIO Ken Carroll couldn't be reached for comment on the planned acquisition by UGI, a $1.4 billion propane gas distributor and energy services firm in Valley Forge, Pa.

According to a 10-K form filed in December, Unisource is tossing more than 20 small-scale applications and shifting more work to its corporate data center, which runs about 15% of its computer operations.

It also eventually plans to replace 23 major systems with a single, companywide set of applications. R/3 originally was supposed to be that single logistics and distribution system, but Unisource stopped development work with SAP's software early last year. Instead, the company began to implement year 2000 fixes on its homegrown systems after its plan to customize R/3 to fit the different operating procedures at individual business units proved too complex.

R/3 did go into use in Philadelphia, and a source said it was working satisfactorily. But Unisource decided maintaining R/3 for one site was too expensive and now plans to replace it by August with an IBM AS/400-based homegrown application that's already used at a customer service center in St. Louis, the source said.

R/3 and other ERP applications are best-suited to being rolled out across a company along with common procedures for all business units, said David Dobrin, an analyst at Benchmarking Partners Inc. in Cambridge, Mass. The cost of running R/3 at just one site "can be prohibitive," he said.

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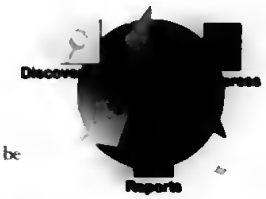

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BRIEFS

Raytheon To Pick Outsourcer

Following a series of mergers and acquisitions, Raytheon Co. is close to outsourcing a significant portion of its information technology operations. The deal is aimed at reducing IT costs by up to 15% by consolidating e-mail and networks. The finalists are IBM and Computer Sciences Corp. in El Segundo, Calif. Raytheon expects to make a decision by May.

New Domain Name Group Starts in May

The Internet's new Domain Name Supporting Organization will manage domain name issues in May, according to the Internet Corporation for Assigned Names and Numbers (ICANN). The U.S. ICANN has managed the registration of top-level domains: .com, .org and .net.

Net Businesses Not Ready for Set-Tops

By 2002, 5 million digital set-top boxes are expected to be in U.S. homes, but only 20% of the Web's leading electronic-commerce vendors are prepared for the opportunity, according to a study by Jupiter Communications Inc. in New York. The firm said the vendors should partner with cable modem providers and Internet providers.

Short Takes

REPUBLIC BANK OF NEW YORK has outsourced its data center, help desk, network and communications operations to COMPUTER SCIENCES CORP. . . . U.S. CENTRAL CREDIT UNION, the nation's wholesale credit union for corporate credit unions, has hired ELECTRONIC DATA SYSTEMS CORP. in Plano, Texas, to develop a Web-based network that will link 11,000 credit unions. . . . INTEL CORP. bought LEVEL ONE COMMUNICATIONS INC. in Sacramento, Calif., in a $2.2 billion stock swap. . . . To protect musicians' copyrights, the EUROPEAN PARLIAMENT has adopted a proposal to require Web sites to get artists' permission before caching content on their servers.

PC FEATURES AIMED AT CUTTING COSTS

Price of ownership targeted with software that tracks upgrades, easier-to-open boxes

BY MATT HAMBLEN

Most desktop vendors last week offered corporate customers hardware and software features designed to make PCs easier to manage and cheaper to own during their lifetimes.

Several vendors recently have unveiled Pentium III desktop machines that include easy-open chassis for repairs or replacing new circuit cards. In addition, some offer standard motherboards that work on different models and CPUs.

The features are intended to lessen the amount of time it takes information technology staff to update machines with hardware or software or lessen the number of times a new software portfolio must be installed and verified by IT staff during a desktop rollout.

"Offering corporate buyers ways to lower total cost of ownership is one of the last areas of differentiation as desktops become commodities," said Kevin Knox, an analyst at Gartner Group Inc. in Stamford, Conn. "It's a hot area" for the vendors, he said.

Toshiba America Information Systems Inc. in Irvine, Calif., began a year ago to offer new management features, including a motherboard common to three models that's usable with 11 CPUs. But Toshiba got little attention until Hewlett-Packard Co. last week announced its common motherboard design with Pentium III machines, analysts said.

Other leading PC makers such as Compaq Computer Corp. and IBM offer software upgrades that track what applications and settings are included in a standard software image, making it easier to swap out an old device and driver, analysts said.

Greg Houston, manager of PC services at J.D. Edwards World Solutions Co. in Denver, said his company began to use nearly 1,000 new Toshiba desktops last summer, in addition to IBM and HP machines, because the Toshiba's were designed to lower costs. "The consistency of the Toshiba motherboard means we don't have to change the software image each time we get a new motherboard," Houstoo said.

Don Venneman, vice president of IT at Pawtucket Mutual Insurance Co. in Pawtucket, R.I., said the new desktop management features are "a fairly high priority" because upgrades are so common.

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Ariba Reduces Hassle in Online Purchasing

Joins trend in simplifying catalog process for suppliers, which in turn helps buyers

BY CAROL SLIWA

Buyer and supplier companies should have fewer hassles in the online purchasing process thanks to business-to-business commerce networks being set up by major Web-based software-procurement vendors.

Ariba Technologies Inc. in Sunnyvale, Calif., considered to be the market leader by many analysts, last week put its stamp on the trend, unveiling its Ariba.com Network, which promises to make transaction integration and time-consuming catalog management easier for both buyers and suppliers.

"It keeps them out in front," said Bob Parker, an analyst at AMR Research Inc. in Boston.

Other Web-based procurement vendors taking similar tacks include Walnut Creek, Calif.-based Commerce One Inc., which launched its MarketSite last year, and New York-based Intellisys Electronic Commerce LLC, which plans to launch Intellisys.com in June.

Ariba's direction comes as good news to early adopters such as Canadian Imperial Bank of Commerce (CIBC) in Toronto and Boehringer Ingelheim Pharmaceuticals Inc. in Ridgefield, Conn. They validate, store and maintain their supplier's catalogs internally.

"It's a burden," admitted Holger Huels, chief financial officer at Boehringer Ingelheim, an Ariba user.

With the Ariba.com Network, suppliers will validate and manage the catalogs and gain the following options:

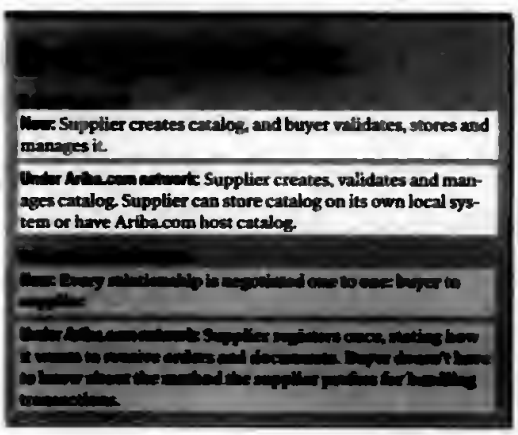
- Keeping catalogs local in their internal systems.
- Having Ariba.com host their catalogs, which will be stored in data centers run by Hewlett-Packard Co., Ariba's partner in the venture.

Under the current Ariba system, suppliers must make their product catalogs available in Ariba's Catalog Interchange Format, with the customer-negotiated pricing and products.

Under the new system, suppliers register once with the Ariba.com Network, and they can indicate how they want to handle transactions — by e-mail, fax, electronic data interchange or the Extensible Markup Language — with any buyers that use Ariba.com.

John Dante, western regional information technology manager at Delray Beach, Fla.-based Office Depot Inc., said the ability to scale quickly to more customers would be an advantage that his supplier would gain from joining the Ariba.com Network.

Suppliers may be able to get up and running more quickly, so buyer companies such as Ariba customer CIBC plan to increase their rosters of suppliers. "This is going to cause us to go back and review whether we should be hosting catalogs or not," said Jack Miles, CIBC's chief purchasing officer.



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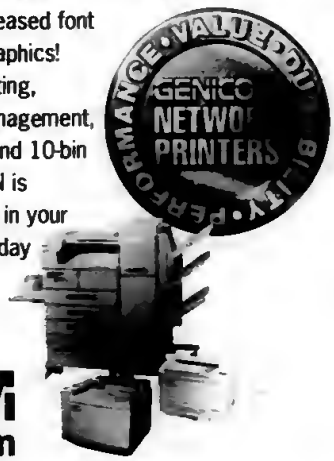

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Users Laud IBM Megadeal to Supply Dell With Technology

BY MATT HAMBLEN

A $16 billion, seven-year technology pact between Dell Computer Corp. and IBM could address shortcomings corporate customers said they face with Dell.

In what analysts called the largest-ever deal of its kind, Dell will purchase IBM storage, memory, networking and flat-panel displays for use in its computers. The deal could be expanded to include access to many other IBM technologies but isn't so broad that it includes IBM services, officials from the two companies said. Services once were rumored to be part of the deal, something that would have made the agreement much more important, said Roger Kay, an analyst at International Data Corp. in Framingham, Mass.

"I think the IBM deal will enhance the Dell line, especially if it means they are using a single, strong vendor for more of their parts," said Robert Fillmore, PC administrator at American Cyanamid Co. in Princeton, N.J., which has 2,000 desktops from several vendors.

"IBM definitely helps Dell, especially if it means IBM will freeze the parts Dell leaves in models for longer," added Greg Houston, manager of PC services at J. D. Edwards & Co. in Denver, which has 5,000 desktops, including IBM models.

Too Many Changes

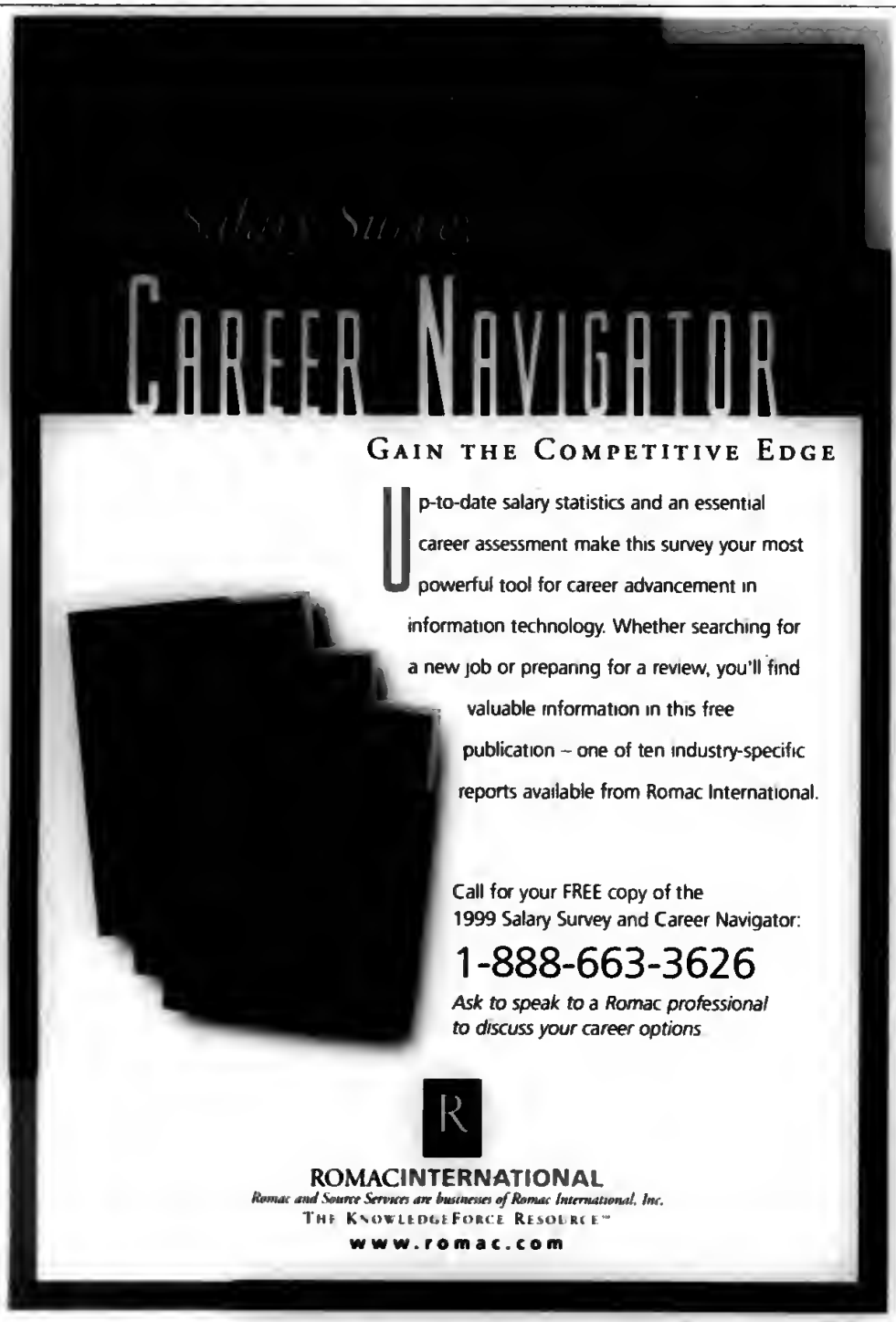
Houston said business sales for Round Rock, Texas-based Dell are "dragged down now" because the company frequently changes internal components in its machines without issuing a new model, which means companies must spend time and money to update software configurations more often. In effect, Dell is adding work for end users with its incremental changes.

Beyond those issues, the $16 billion commitment should give Dell a technological edge over desktop competitor Compaq Computer Corp., which will need to find a similar partner to stay competitive, Fillmore said.

A spokesman for Compaq said the Dell announcement doesn't pose an unusual threat because IBM isn't exclusively tied to Dell.

The first Dell computers affected will be sold to companies. They will include workstations, networked servers and storage devices used in enterprise data banks, a Dell spokeswoman said. IBM disk drives already are used in Dell laptops and desktops.

IBM wouldn't comment on the deal's impact on it's own PC product line. "There is a potential for weakening IBM's PC business if the Dell/IBM marriage works," Kay said. But Dell "has been weak with enterprise customers and internationally" in areas where IBM is strong, he added.



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CHOICE, NOT STANDARDS, DRIVES LINUX USERS

But standards group is working to make versions more compatible

BY DAVID ORENSTEIN
SAN JOSÉ, CALIF.

THE LINUX community should impose only the minimum development standards required to prevent the operating system from fragmenting, said users at the LinuxWorld Conference & Expo here last week.

The Linux culture, and that of many of the 6,000 people who attended the show, values choice above tightly managed standards. But because commercial firms have begun distributing slightly different configurations, called "distributions," not all applications run on all versions of Linux.

"You've got to be able to know that if you get a Linux binary that you can run it no matter what distribution you are running," said Michael Zorska, a lead programmer at the Cleveland-based manufacturer Eaton Corp., which doesn't use Linux but is evaluating it.

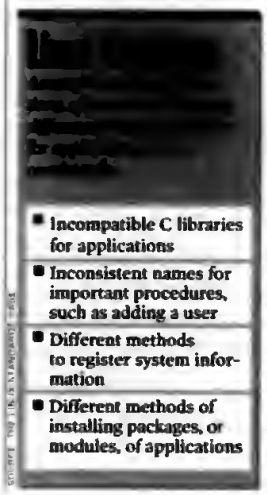
To aid compatibility, the Linux Standards Base (LSB), a vendor consortium in Santa Clara, Calif., plans to produce within a year a specification, a test suite and a sample implementation that vendors can use to make products LSB-compliant.

But Daniel Quinlan, LSB's chairman, said LSB doesn't want to mandate desktop interfaces, Java virtual machines or other supporting technologies.

User Backing

Users agreed with that philosophy. "They seem to be drawing the line at the correct place," said Daryll Strauss, manager of software development at Digital Domain Inc., a special effects studio in Los Angeles that uses Linux in high-end image rendering.

Emmett Plant, information systems director at Fun-Time International Inc., a maker of novelty drinking straws in Philadelphia, said he prefers to have a choice among three competing Linux desktop interfaces and would discourage vendors from standardizing on one.



- Incompatible C libraries for applications
- Inconsistent names for important procedures, such as adding a user
- Different methods to register system information
- Different methods of installing packages, or modules, of applications

Courtesy of the Linux Standard Base

Vendors last week took different approaches to managing Linux's diversity, including the following:

- Computer Associates International Inc. said its Unicenter TNG application framework has been tested and ported only to Red Hat Software Inc.'s version of Linux.
- VA Research Inc., which sells computers with a choice of four distributions, may have to drop one because testing four is too burdensome, said CEO Larry Augustin.
- IBM said it will support the four major distributions; Corel Corp. said it will distribute its own Linux version.
- The GNU Project's Free Software Foundation Inc. in Boston, released a graphical interface for Linux, called Gnome, that will ship with Red Hat's distribution but also runs on other Linux versions.

SAP AG To Release Linux Version of R/3

Analysts say 18 months until users ready, but some say big potential exists

BY CRAIG STEDMAN

The fast-moving Linux bandwagon picked up a heavy-duty rider last week when SAP AG hopped on board.

SAP, the biggest vendor of enterprise resource planning (ERP) applications, said a Linux version of its R/3 software is due for initial shipment in the third quarter. The German company said it got "a significant number of serious customer requests" for a Linux-based R/3 release.

But analysts predicted it will be at least 18 months before many users are willing to run their corporate ERP systems on the free Unix variant, which now is used mainly as an e-mail, file or Web server.

SAP isn't the only ERP vendor that's embracing Linux. Oracle Corp., which last July said its applications were being ported to the operating system, demonstrated the software at last week's LinuxWorld Conference & Expo and said shipments should start in the next couple of months.

But PeopleSoft Inc., Baan Co. and J. D. Edwards & Co. said they haven't seen enough user demand to justify doing Linux ports of their ERP applications at this point.

Even so, the idea has some appeal, according to Robert Rubin, CIO at R/3 user Elf Atochem North America Inc. The Philadelphia-based chemical maker has no immediate plans to use Linux, but Rubin said it could be a viable alternative to Windows NT, especially for stand-alone ERP systems at individual business units.

"There's no question that Linux is for real," he said.

Scott Benninghoff, a systems analyst at Hydro Agri North America Inc. in Tampa, Fla., said he's lobbying to test Linux on PCs or a database application that takes feeds of order data from its R/3 system as a prelude to any ERP usage.

Linux "can definitely handle an ERP application, probably better than NT can," said Matthew Nordan, an analyst at Forrester Research Inc. in Cambridge, Mass.

But corporate Linux know-how often is still limited, and technical support by vendors is just emerging, he said.

Even Kevin McKay, CEO of SAP's U.S.-based subsidiary in Newtown Square, Pa., said it's too early to tell how much demand there will be for R/3 on Linux.

Cyberattacks on the Rise

Security group's survey shows increase, which may come from better detection

BY ANN HARRISON

The Computer Security Institute last week released a study concluding that wider use of security tools has failed to significantly decrease the number of successful cyberattacks or stem resulting financial losses, which rose to more than $100 million for the third straight year.

The institute's survey of 521 security managers found that security breaches by outside crackers increased for the third year in a row, with 30% of the respondents reporting intrusions, up from 24% last year.

An Internet connection was a frequent point of attack for 57% of the respondents, and 20% had detected unauthorized access or misuse of their Web sites in the past year. One-third weren't sure if their sites had been hacked or not, according to the survey by the San Francisco-based institute.

On the Outside Looking In

The number of attacks from outside crackers is catching up to the frequency of unauthorized access from insiders. Insider attacks also rose for the third straight year, with 55% of the respondents reporting incidents, a 10% increase from last year.

Dan Erwin, a specialist in information security strategy and planning at Dow Chemical Co. in Midland, Mich., questioned whether the figures simply reflect the wider application of intrusion-detection tools and expansion of electronic commerce, intranets and extranets.

Erwin also noted that many companies have opened themselves to attack by installing a firewall without dedicating resources to manage it effectively. Effective security requires an adequate budget, staff training and management support, he emphasized. "A firewall is not a one-time silver bullet. They have to be managed professionally and audited regularly, both internally and externally," Erwin said.

Richard Power, editorial director at CSI, said security management accounts for less than 3% of information technology budgets and that, on average, there is only one security staffer per every 1,000 users. Companies are wasting money buying technology if they don't create the human infrastructure, policies and procedures to curb abuses, Power warned.

Security tools developer Marcus Ranum, known as the "father of the firewall," noted that many companies also don't take the time to install patches for known vulnerabilities.

"The best thing you can do for security is to keep your software up to [the latest] revision level," said Ranum, now CEO of Network Flight Recorder in Woodbine, Md.

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BRIEFS

Telco Year 2K Group: Phones Pass Y2K Test

The Telco Year 2000 Forum last week said phone call processing is expected to continue without major disruption when 2000 arrives. The group of the nation's largest local phone companies finished six months of successful interoperability testing in 20 labs and has posted results at www.telcoyear2000.org.

Pentagon Confirms Cyber Attack

The U.S. Defense Department is investigating what it calls an ongoing and sophisticated attack on its military computer systems. A Pentagon spokesman said classified networks have been breached, and investigators are checking whether the attack was a coordinated effort.

Retrain Non-IT Staff to Fill Tech Openings

Researchers at International Data Corp. in Framingham, Mass., said 772,000 information technology professionals will need to be hired in the U.S. this year. It recommends that companies retrain non-IT workers to fill the vacancies or recruit non-IT majors out of college.

Feds To Probe Online Druggists

A Congressional panel last week ordered a study of online pharmacies. The concern is that Web-based drugstores may be filling prescriptions authorized by doctors who had no in-person contact with patients.

Short Takes

In a case involving encryption software, an Ohio professor and the AMERICAN CIVIL LIBERTIES UNION have appealed a federal court ruling that source code doesn't have the same constitutional protections as speech. . . . SUN MICROSYSTEMS INC. has licensed its Java Media technologies to the Linux Blackdown Java 2 porting team.

ANTITRUST TRIAL GIVES OEMs BREATHING ROOM

Strong DOJ showing encourages remedy pitches, public show of support for Linux

BY PATRICK THIBODEAU
WASHINGTON

THE GOVERNMENT'S attack on Microsoft Corp. has emboldened its competitors and business partners to take on the software company in very public ways they might not have dared before.

The Software & Information Industry Association (SIIA), a group that represents both Microsoft's partners and competitors, recently sent the U.S. Department of Justice a report recommending that the company break up into a collection of so-called "Baby Bills."

In addition, some analysts said the slew of recent Linux-related announcements by longtime Microsoft licensees such as Dell Computer Corp. and Compaq Computer Corp. is evidence that vendors are less afraid of Microsoft.

Still, the companies are stepping gingerly. SIIA members voted for the remedy by secret ballot. And the Linux vendors aren't challenging Microsoft in the area the government claims Microsoft is using its monopoly power: on the desktop.

"Microsoft is not in a position to do many of the things that it might have done in the past," said Dan Kusnetsky, an analyst at International Data Corp. in Framingham, Mass.

For example, the government has alleged that Microsoft used the financial terms in its Windows license agreements to convince vendors not to put rival Netscape Communications Corp.'s Navigator browser on the Windows desktop. Microsoft said that never was the case.

One of the government's strongest pieces of evidence was presented just before the trial broke on Feb. 26 for a six-week recess. A Gateway official told the court that after the PC maker began offering the Navigator browser, Microsoft representatives "repeatedly" told Gateway its decision was a "serious issue that could affect our working relationship."

User Demand

Spokesmen at Compaq and Dell said Microsoft's legal problems have nothing to do with their product decisions. "It's just strictly customer demand," said Compaq spokesman Dick Calandrella. User interest is driving vendors, agreed Sandra Potter, an analyst at Aberdeen Group Inc. in Boston. "Linux has a life of its own," she said.

For now, vendors are focusing on workstations and servers but aren't ruling out desktops.

The SIIA's remedy recommendation only matters if the government wins its case. A Microsoft spokesman called the SIIA's recommendation "wishful thinking." Microsoft executive vice president Bob Herbold claimed the recommendation was made by only a subset of the SIIA's member companies and doesn't reflect the general membership's feelings.

The SIIA's action was criticized by another IT industry group, the Association for Competitive Technology, as "out of touch." It cited its own recent independent poll of 408 IT executives, 62% of whom opposed a break-up of Microsoft. The year-old group, which claims 9,000 members, has been lobbying for Microsoft during the trial.

Kenneth Glueck, senior director for governmental affairs at Oracle Corp., an SIIA member, said if the 1,400-member group doesn't weigh in, the fate of the software industry will be left to "the lawyers and regulators at the Justice Department."

Online reporter Kathleen Ohlson contributed to this report.

Gates Pitches NT Support for E-Commerce

Partners, products target support for high-volume online business

BY KIM S. NASH

Microsoft Corp. CEO Bill Gates last week announced a series of E-commerce partnerships with other vendors, a plan to host small-business Web sites and an upgrade to the company's electronic-commerce software.

Analysts said Microsoft had to orchestrate the high-profile San Francisco event to try to ease doubts about whether its products — Windows NT and the upcoming Windows 2000 operating systems, in particular — are up to snuff for high-volume online business.

"Microsoft really needs to show they're capable of scaling, for purposes of selling NT," said Scott Smith, an analyst at Current Analysis Inc. in Sterling, Va.

"They've had specialized applications of BackOffice for retail and transportation," for example, but little to appeal to the general electronic-commerce market, Smith said.

Well-publicized setbacks haven't helped Microsoft's cause. One example: Toys R Us Inc. installed Unix Web servers when its existing Windows NT servers got overwhelmed by a Christmastime rush at the retailer's Web site.

But Microsoft points to some large customers that vouch for Windows NT's strength. Office Depot Inc. in Delray Beach, Fla., has standardized on Microsoft products and "couldn't be happier," said CIO Bill Seltzer in a recent interview.

Office Depot runs NT at its online store and plans to install the operating system at its 750 physical stores.

Gates talked about a couple of new products, including BizTalk, a set of interchange services and data templates based on the Extensible Markup Language and designed to let merchants and customers exchange business data. SAP AG, PeopleSoft Inc. and J.D. Edwards & Co. said they will support BizTalk, which is slated for beta testing in July. Commercial release isn't expected until next year.

Also due next year is an upgrade to Microsoft's Site Server Commerce Edition, a Web server for online commerce (see chart). The upgrade, Microsoft Commerce Server, isn't due until several months after Windows 2000 ships — and that's not expected until late this year or early next.

West Coast bureau chief Galen Gruman contributed to this report from San Francisco.

Microsoft's E-Commerce Lineup

MICROSOFT COMMERCE SERVER, an upgrade to Microsoft's electronic-commerce Web server due after Windows 2000 sometime next year

BIZTALK SERVER, software that supports the Extensible Markup Language and was designed to let Microsoft's Web servers communicate with products from other vendors

MICROSOFT SMALL BUSINESS COMMERCE SERVICES, a package of Web development tools and hosting services available via Microsoft's MSN Web site

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*1996 IBM Business Recovery Services Study

Continued from page 1

HP Breakup

its energies and resources better on its core computing business, said Scott Manning, manager of midrange systems at Saks Fifth Avenue in Lawrenceville, N.J.

"They need to have a strategy that says, 'This is what we can help you build, and these are the resources we can bring to bear to help you do so,' " said David Krauthamer, IT director at Advanced Fibre Communications Inc., an HP user and a manufacturer of telecommunications equipment in Petaluma, Calif.

As laid out by HP Chairman and CEO Lewis E. Platt, HP will be split into two pieces: a $7.6 billion measurement company — to be spun off as an independently traded company later this year — and a separate, $39.5 billion computing and imaging organization that will retain the HP name. It will focus on all of HP's enterprise computing hardware, software, middleware, PCs, printing and imaging technologies.

The breakup, which should be completed in about 18 months, was driven by growing differences in the business models of the measurement organization and the computer business, Platt said.

No layoffs are planned. Platt plans to leave after the transition is completed.

The restructuring of HP — one of the biggest of its kind in IT history — comes at a time when the company has been struggling to regain its momentum of the early 1990s. Though HP remains profitable, much of its previously galloping growth rate, which was in excess of 20% as recently as 1996, has slowed.

Product revenue has been sluggish, and the company has fought to cut mushrooming operating expenses with a series of cost-cutting moves last year.

HP also has blamed the Asian financial crisis, currency fluctuations and PC price wars for its tepid performance in the past few quarters.

Accustomed to a high-margin proprietary server business, HP also has had a hard time bringing operating costs in line with a commodity hardware business.

Mixed Messages

Users meanwhile, have groused that the company sends conflicting messages about its strategic direction — most notably in the Internet arena.

During the past year or so, HP has taken significant steps to address those issues.

A couple of major internal reorganizations last year — under which HP merged its vast IT consulting and enterprise computing organizations and aligned its Unix and Windows NT sales forces — have shown users that different groups "are on the same side," said Vance McCarthy, editor of *HP World*, a user publication owned by the HP user group Interex.

CISCO RECALLS HIGH-END BOARDS

Component change in router interface card puts data on Token Ring packets at risk

BY BOB WALLACE

Cisco Systems Inc last week confirmed that it's recalling interface boards for its popular high-end routers because of a problem that can corrupt mission-critical data in Token Ring packets.

The networking giant estimated that roughly 1,000 boards for its 7000 and 7500 high-end routers underwent a component change that leads to the data corruption. Cisco is providing replacement units free of charge.

Eric Teagarden, Cisco's Token Ring switching product manager, said the problem was brought to the vendor's attention recently by a user whom Cisco refused to identify. He said he doesn't know how many users have the affected boards.

Although an unspecified number of users with the boards likely run transport protocols such as TCP that can correct the problem, Teagarden said Cisco decided not to rely on that, opting instead to replace all the boards. The vendor last week posted a recall notice on its Web site.

Serious Problem

And analysts said the problem could be serious. "This problem is severe enough for users to do the board replacement, as Token Ring networks are used for more mission-critical mainframe applications than Ethernet," said Eric Hindio, an analyst at The Yankee Group Inc. in Boston. "In a stock transaction it could mean a decimal point is moved."

Pinpointing the problem could be a tall task for users, said Stan Schatt, a director at Giga Information Group Inc.'s San Diego office. "When corrupted data is sent over a WAN, it's not going to be self-apparent that the cause is a router problem," Schatt said. IT staff will think the problem is with a WAN line rather than the router, he said.

Cisco's efforts to track down users of the affected boards is complicated by the fact that the vendor sells much of these products through channels, which can prolong identifying the bad units.

Continued from page 1

Health Y2K

The recommendations are expected to be adopted by much of the health care industry. Backed by heavyweights that include Aetna Inc., SmithKline Beecham and HighMark Blue Cross/Blue Shield, the plan was developed under the auspices of Odin Group LLC, a Nashville research firm.

"The health care system is fully interdependent, and we either all win or we all lose," said Daniel Nutkis, chairman of Odin Group.

The group will publish guidelines for alternate operating procedures that cover things like how hospitals can order medications if their computerized supply systems aren't working or how they could be paid if insurers can't cut computerized checks.

The guidelines also include the following:

- Tips for establishing alternate operating procedures with trading partners.
- An assessment of the top 150 functions that are related to year 2000 compliance and patient safety.
- Case studies and examples detailing recommended approaches if systems fail.

"We are assuming that a certain amount of failure will occur, and [we] are trying to get the health care industry to think about contingency plans," said Brad Armstrong, a partner at Deloitte Consulting's health care information technology practice and initiative member.

Fairview Health System, which operates 700 beds at two Cleveland-area hospitals, plans to wrap up the remediation of its biomedical devices and computer systems by June so that it can test its contingency plan. That includes having generators and a backup water supply on hand, said Chris Clancy, director of technical services.

Clancy said he's interested in the Odin Group work "even just to use as a comparison to what we've come up with." He added that it could be key to smaller hospitals. "We were called by some small hospitals last year who were looking for the names of some Y2K consultants. . . . We were pretty shocked that they were just getting around to thinking about it," he said.

Indeed, the health care industry has come under fire recently in congressional reports that single it out as the worst-prepared for the year 2000. According to the Senate's Special Committee on the Year 2000 Technology Problem, 6,000 hospitals, 800,000 doctors and 50,000 nursing homes may be unprepared for the year 2000.

"Now, the industry is starting to look at contingency plans," said Maureen Mudron, counsel for the American Hospital Association (AHA) in Washington. AHA already has distributed some of the Odin Group's year 2000 research to its 5,000 members.

Dick Hutzell, information officer at Catholic Healthcare West in Los Altos Hills, Calif., a network of 48 hospitals, said, "I think a lot of hospitals are just starting to think about contingency plans, so anything that might help them is good."

MOREONLINE

For resources related to health care, information technology and year 2000, visit our Web site
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Retailer Orders Outsourcing

BY SHARON MACHLIS

Montgomery Ward & Co. has signed a five-year contract to outsource its information technology operation in order to cut costs and, it said, to offer more career opportunities to its IT employees.

The Chicago-based retailer is in the midst of a Chapter 11 bankruptcy reorganization.

Outsourcer Acxiom Corp. in Conway, Ark., said it will move Ward's data center from the retailer's Chicago headquarters to an Acxiom site in Downers Grove, Ill.

The deal covers mainframe, midrange, desktop and network operations.

Acxiom, which estimated the contract will be worth $90 million, will offer jobs to more than 100 Ward IT employees.

In a statement issued last week, Ward CIO Karl Taylor said the company chose the outsourcing arrangement because of cost efficiencies, ability to deploy new technologies and long-term career opportunities for IT workers.

It's fairly common for companies in financial difficulty to look to outsource IT to cut costs and make it easier to hire and retain IT talent, said Brian Hume, president of Martec International Inc., an Atlanta-based retail consulting firm.

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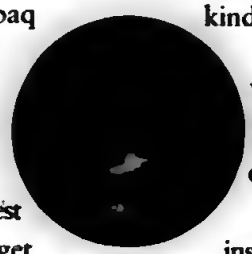

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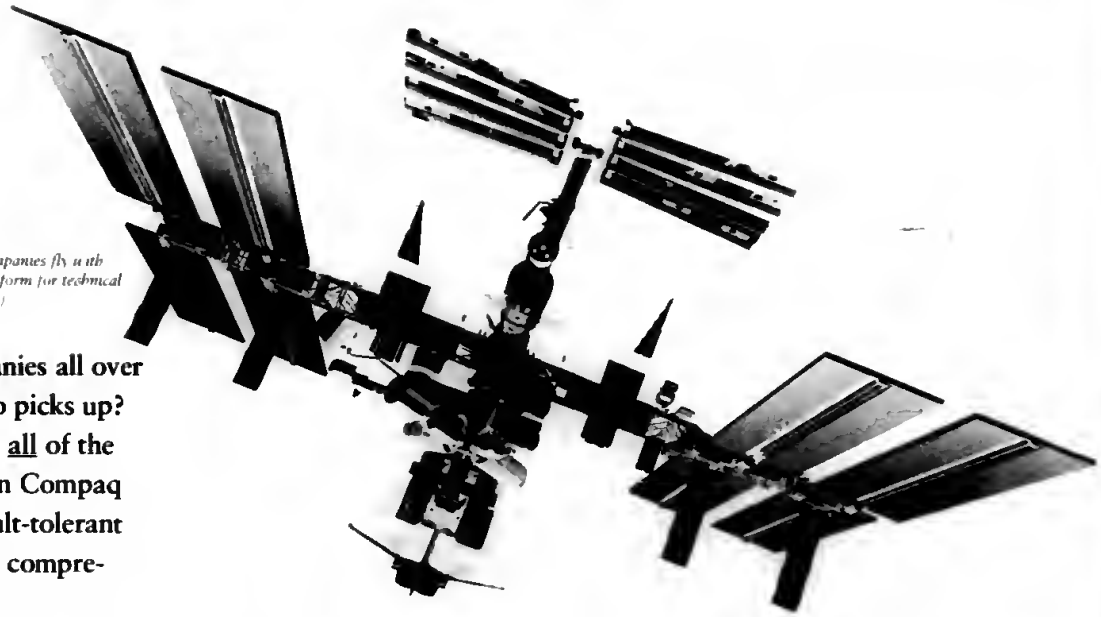

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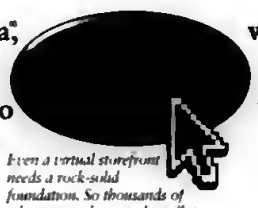

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INDUSTRY PLAYERS SET PLANS FOR WEB DEVICES

Standards may be years away, but U.K. retailer sees promise now

BY STACY COLLETT

TWO BUSINESS alliances announced last week are laying the groundwork for Web-based standards to interconnect cell phones, personal digital assistants and even home appliances.

Some 15 high-tech companies, including IBM, Sun Microsystems Inc. and Oracle Corp., plan to create Java-based programming standards for Internet service providers, network operators and equipment manufacturers.

And in a separate announcement, Motorola Inc., Lucent Technologies Inc. and AT&T Corp. said they formed the Voice Extensible Markup Language (VXML) Forum, which will promote VXML standards for creating Web content and services to be accessed by phone.

"Standardization is about five to 10 years out," said Greg Blatnick, an analyst at Zona Research Inc. in Redwood City, Calif.

But some corporate information technology departments are already exploring the use of non-PC devices and the technological challenges that go with them.

> Standardization is about five to 10 years out.
>
> GREG BLATNICK, ANALYST, ZONA RESEARCH INC.

Safeway Stores PLC, a U.K.-based grocery chain, developed with IBM a remote shopping service that lets customers use palm-size electronic organizers to build and submit grocery orders.

Grocery List

A scanner in the devices, developed by 3Com Corp., lets customers scan products at home to compile a list. A modem transmits the order through Safeway's intranet to a server, where IT staff use browser-based applications to identify and retrieve a customer's groceries.

Customers can pick up their order within eight hours of transmitting at one of 160 stores.

"We have no plans on expanding our IS staff, but as we move the project forward we will expand our skills in Java and Web-based technologies," said Jeremy Wyman, business solutions manager at Safeway in Middlesex, England.

Safeway distributed 200 handheld devices in February. Its 500 U.K. stores could deploy a half-million devices in the next four years, according to Wyman. He added that Safeway's future customer service projects involving mobile phones and set-top boxes that will use the Web.

IBM officials said the company is working with unidentified pharmaceutical companies to test thin-client devices for placing drug orders and with companies in the automobile industry to test car-mounted devices that provide logistics and fleet-management information.

As thin-client technology advances, industry observers said users will face challenges such as securing valuable data on small devices that are easily lost or stolen, managing applications on a large scale and transcoding information to ensure that different devices can communicate with one another.

Ben & Jerry's: Serve Yourselves on Site

With no time for personal replies to fans, ice cream maker uses Web to dish scoop

BY BARB COLE-GOMOLSKI

In the early days of its business, the founders of Ben & Jerry's Homemade Inc. would scratch handwritten notes in response to consumers' letters. Now, when its comes to e-mail answers, the company known for its homemade ice cream flavors is asking customers to serve themselves.

Since it launched its Web site (*www.benjerry.com*) in 1995, the South Burlington, Vt., ice cream maker has seen its e-mail volume climb to as many as 500 messages per week.

Using Bozeman, Mont.-based Right Now Technologies Inc.'s Right Now Web, Ben & Jerry's built a searchable database of frequently asked questions in which ice cream fans can find the status of their favorite flavors and locate stores. If they still want to send e-mail, the system, installed Feb. 15, will channel the message to a specific person.

Culture Clash?

The decision to install the software was a tough one for the culture-conscious company.

"We feared that it would feel overautomated," said Lucas Jenson, marketing strategy and research manager at Ben & Jerry's. However, "we feel we can maintain the personal feeling by allowing consumers to read other peoples' questions," he said.

David Baltaxe, an analyst at Current Analysis Inc., a research firm in Sterling, Va., applauded the move.

"Customers want to know the answer to their questions, and they want a positive experience in dealing with the company," Baltaxe said. "But they don't have to interact directly with somebody," a move that can save a company time and money, he said.

Jenson said the system should help Ben & Jerry's avoid having to grow its three-person consumer affairs group.

It isn't likely to eliminate the queries completely, however. "No matter how easy you make it for people to find answers, some don't make the effort to find the information themselves," he said.

To handle fan mail and flavor suggestions, the company is constructing new areas of its site where fans can leave notes. And it's readying Chunkmail, an e-mail service that will keep customers who sign up informed about new flavors and special deals.

"It's not like we are trying to eliminate contact with our customers," Jenson said. They're just trying to make that contact more productive, he said.

MORE ONLINE

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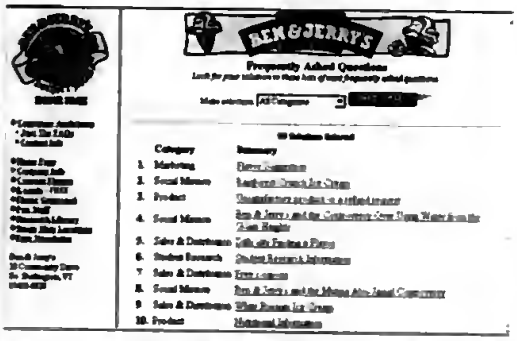
INTEL EXECUTIVES SLAIN

Among the eight tourists killed last week by Rwandan rebels in southwestern Uganda were Rob Haubner, 48, and Susan Miller, 42, who were managers in Intel Corp.'s sales and marketing group in Hillsboro, Ore. This is a July 5, 1996, photo of the couple taken at their Portland, Ore., home. They were part of a group of tourists kidnapped during a gorilla-watching expedition.



Ben & Jerry's has added a section to its Web site for consumers to find information on ice cream and social activism

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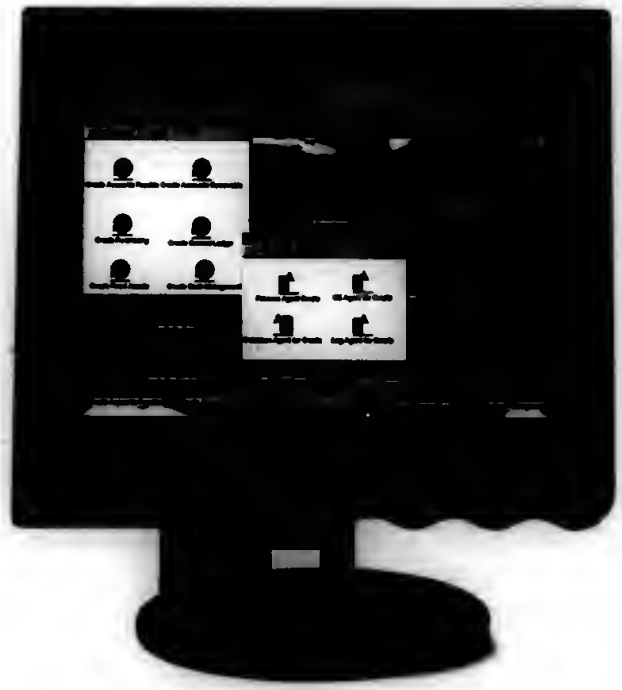

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WEB MERCHANTS STUNG BY FRAUD

Authorities rarely interested in catching credit-card crooks

BY CYNTHIA MORGAN

THE NEW subscribers' credit cards were fake, which puzzled webmaster Danny Sullivan. His *Searchengine watch.com*, an online 'zine near Britain's Stonehenge, was hardly a ripe target for thieves.

So Sullivan traced the transactions to their source, uncovering a scam that bilked companies such as Amazon.com Inc. and Cyberian Outpost Inc. out of hundreds of thousands of dollars in computers, software, books, music and other merchandise.

Along the way, Sullivan also uncovered one of the Internet's dirtier secrets: Credit-card fraud is alive and well on the Web — but its victims are mostly electronic-commerce merchants, not consumers. Criminals use stolen credit-card numbers to ring up online purchases — usually of high-ticket electronic items or downloadable products such as software and images — and stick online merchants with the tab.

In some cases, fraudulent transactions accounted for 20% or more of Web merchants' sales until managers got wise and installed antifraud software. "There were days when we had more fraud than legitimate sales," one chief technology officer said.

Worse, law enforcement officials, banks and credit-card associations often are too busy, too untrained or too indifferent to help catch the crooks.

Sullivan found that the thieves — who turned out to be five university students — used the site to test credit-card numbers and then used successful numbers to scam U.S. merchants. Finding the thieves was easy compared with finding someone who could stop them. "I finally called the '800' numbers on back of my credit cards, saying, 'Please help, someone is being ripped off,' " he said. A few weeks later, authorities finally responded and arrested the thieves.

Police Apathy

Similarly, the temp who covered for NETrageous Inc.'s Stephanie Sebeck during her vacation failed to notice that orders for the company's Internet marketing materials on three different credit cards were going to the same address. When angry cardholders denied the charges, Sebeck called the police. "We found the thief, told them where he lived, what he took, sent the paperwork. [The police] said, 'We have more important things to do than chase down $1,500,' " said Sebeck, vice president of operations at the Olney, Md., firm.

The experience prompted NETrageous owners Audri and Jim Lanford to start Scambusters (*www.scambusters.org*), a fraud-alert Web site for online retailers. More than 50,000 merchants have subscribed to the free site. Judging from their tales, online credit-card fraud is rising fast, Audri Lanford said.

Banks that issue the credit cards don't cover the cost of the scams. "We don't take any loss via the Internet because we can charge it all back [to the merchant] using Visa and MasterCard rules. The merchant, not us, bears the cost," said Rob Milson, manager of fraud operations at Mellon Bank in Pittsburgh.

Like their counterparts in the mail- and telephone-order businesses, Internet credit-card transactions lack a signature or the identification-carrying magnetic stripe on the back of the card. Merchants who accept them agree to pay full cost — and often penalty fees — if a sale is invalid.

"Banks aren't going to protect merchants. We certainly understand that their first duty is to cardholders. If we don't want people stealing from us, that's our problem," said Jim Shanks, CIO at computer equipment retailer CDW Inc. in Vernon Hills, Ill.

An online merchant who asked not to be named said one bank had dropped him for having unacceptably high fraud rates, forcing him to turn to a far more expensive, "high-risk" bank to continue accepting customer cards. "We got our fraud down now, but if it ever exceeds 1% of our total, we're out. That, of course, means instant bankruptcy," he said.

Fraud nearly vanquished San Francisco-based BuyDirect Inc. when it opened for business in 1996, said William Headapohl, president of the online software store. "Our fraud rate was unacceptably high and banks wanted to drop us. If we hadn't had strong financial backing and worked hard to reduce our fraud rates, we would have been put out of business pretty quickly."

Using antifraud software and elaborate screening systems, the company reduced its fraud rate to under 1%.

Credit-card associations and many merchants said online fraud constitutes under 1% of all transactions. But anecdotal evidence suggests the rate may be far higher — especially for sites that are poorly maintained or sell big-ticket merchandise. Merchants simply don't see the benefit of reporting thefts. "Most [online merchants] no longer even bother to get in touch with the authorities," Headapohl explained. "It would cost too much to track thieves down and prosecute. And if they're international, you don't even know where to begin. Who's got jurisdiction?"

Selling internationally is one of the key reasons for starting an electronic-commerce site, yet foreign sales are the riskiest of all. "Our international fraud rates were so bad in the beginning, we thought we were going to have to exclude overseas sales altogether," Headapohl said. "Companies like ours were routinely seeing fraud rates in excess of 20%."

The greatest concentrations of credit-card thieves come from Romania, Egypt, Russia, Belarus, Israel, Thailand, Pakistan and Mexico, merchants and law enforcement officials said. The problem is so bad, in fact, that many merchants refuse to do business with buyers in these countries.

Usually, the amounts lost in online transactions are too small to warrant attention by law enforcement officials. "Everyone we've talked with had absolutely no success getting police interested, even for amounts as high as $50,000," said Scambusters' Audri Lanford.

Instead, most successful Web merchants avoid fraud by outsourcing credit-card verification to third parties with sophisticated (and expensive) neural-net antifraud software. Or they develop their own antifraud systems. Another approach is to take verification procedures off-line and check cards manually.

A combination of these procedures, analysts said, provides the best of both worlds: expert authorization handling and expert knowledge of the company's customer base.

"You shouldn't have to rely on banks or the law for fraud protection," Shanks said. "You should know your own customers better than anyone else, so you should also be the best at telling when someone's trying to steal from you."

"Fraud can make the difference between profit or no profit," Shanks added. "Look, if it's your pile of money, who do you want guarding it? Somebody else?"

Fraud Busters

A sampling of fraud-detection software for merchants and banks

VENDOR	PRODUCT	WEB SITE
Advanced Software Applications Corp., Pittsburgh	ScorXPRESS	www.asacorp.com
Anacom Communications Inc., Dallas	SecurePay	www.anacom.com
Internet Commerce Services Corp., Nashua, N.H.	MerchantTrax	www.icoms.com
Nestor Inc., Providence, R.I.	Prism CardAlert	www.nestor.com
PaySys International Inc., Norcross, Ga.	VisionPlus	www.paysys.com

Seedy Sites Provide Fertile Ground

Many credit-card thieves hone their skills in the most fraud-filled sites of all: adult entertainment and offshore gambling.

"We have a rule that we will not take on adult Web sites, dating services and gaming sites because they are rife with fraud," said John Gould, vice president of transaction processor Internet Commerce Services Corp. in Nashua, N.H. "We don't need the headaches, frankly."

Minnesota physician John Faughnan stumbled on to just such a headache when he learned that mysterious small charges on his business credit card were for an adult Web-site subscription.

With the help of a Seattle-based adult site portal owner, Jane Duvall, Faughnan traced the charges back to Kenneth H. Taves. Taves ran high-risk credit-card processing services for adult sites, allegedly skimming card numbers from customers and buying others online.

Prosecutors are presenting evidence that Taves, who is currently on trial, may have netted as much as $40 million.

Adult site owners say they aren't surprised; massive fraud is common in their business.

"There are no consumer-protection groups for pornography customers. What state's attorney general is going to take on protecting the people who sell pornography online?" Duvall said.

– *Cynthia Morgan*

MORE

For a detailed look at credit-card fraud and how to stop it, see page 71.

MOREONLINE

For links to Web sites of organizations that fight credit card fraud, visit our Web site.
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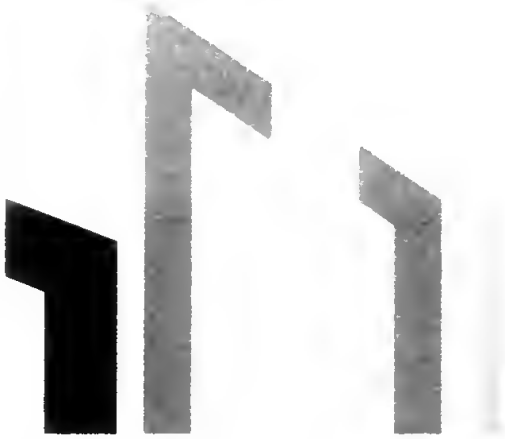

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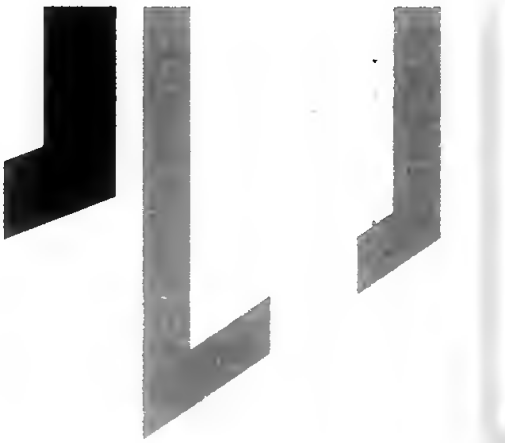

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IBM Pushes E-Commerce Plans to Partners

BY JAIKUMAR VIJAYAN
NEW ORLEANS

IBM built its reputation mainly on its big iron and other hardware. Increasingly, however, the company is hoping to be recognized for its electronic-commerce technologies and services. Seeking to hammer home that message at a recent conference attended by more than 4,000 business partners, IBM outlined a wide-ranging series of new programs for software vendors, systems integrators and resellers to help users quickly deploy Web applications.

"IBM really is the only vendor who has been very aggressive in telling customers that e-business is a major thrust for them and that they want to be your major partner," said Jerry Rode, director of information systems at Saab Cars USA Inc. in Norcross, Ga.

IBM's strategy is to deliver a range of electronic-commerce software, middleware and service bundles that small and midsize businesses in particular can quickly sew into their existing environmeots.

For instance, the company has announced a multiplatform version of its Start Now technologies that will allow Windows NT, AIX and Solaris users to set up online storefronts.

IBM will rely on resellers, systems integrators and software developers to help customers with the necessary backward integration, customization and support of such electronic-business suites in the small and midsize business markets, said William Zeitler, general manager of sales and marketing for IBM's corporate software group (see story, page 65).

Leaving Its Mark

The latest moves should boost IBM's mind share among its electronic-commerce customer base, Rode said. Saab last year built a Web-based business-to-business network using IBM technology to link dealers nationwide back to its headquarters in Georgia. The company is considering IBM offerings for its online shopping and commerce site planned for later this year, Rode said.

"A lot of other companies have been talking the talk, but IBM is one of the few vendors who have really been walking the walk," said Laurie McCabe, an analyst at Summit Strategies Inc. in Boston.

IBM corporate Web technologies like Start Now, Net.Commerce for online catalog sales and WebSphere application servers build on its vast array of operating systems, hardware, management, messaging and middleware technologies, McCabe said.

Together, "It has given them a lot of cross-platform capabilities and has positioned IBM very well" for users looking to extend existing IT infrastructures to the Internet, she said.

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BRIEFS

Baan Suffers Loss

Baan Co. last week reported a $295 million loss for last year's fourth quarter - $45 million deeper in the red than the struggling Dutch company predicted two months ago [CW, Jan. 25]. The company said it set aside more reserves for restructuring charges than planned because of the weakening demand for enterprise resource planning applications that rival vendors also have seen this year.

SAP America Loses CEO to Siebel Systems

Jeremy Coote last week resigned as president of SAP AG's U.S. subsidiary in Newton Square, Pa. Coote was in charge of SAP's six vertical industry sales groups in the U.S. and Canada, which now will report directly to SAP America Inc. CEO Kevin McKay. Three other executives have left the company during the past year.

Coote plans to join sales force automation vendor Siebel Systems Inc. in San Mateo, Calif., as vice president of North American operations, according to SAP officials.

PeopleSoft Gets New Sales Manager

PeopleSoft Inc., an application rival to SAP AG and Baan Co., is changing its sales management in the wake of a weak fourth-quarter showing. The Pleasanton, Calif., company said Al Duffield - the brother of CEO Dave Duffield - will give up his job as senior vice president of field operations and retire from the company later this year. Taking over the top sales spot will be Howard Gwin, who has been head of international sales.

Short Takes

Internet consultant ANSWERTHINK CONSULTING GROUP INC. in Miami has acquired TRISPAN INC., a Philadelphia company that offers electronic-commerce development products. . . . QUANTUM CORP., a drive maker in Milpitas, Calif., plans to develop hybrid tape and disk subsystems and network storage devices to help offset lower profits in its traditional drive products.

SUN WARMS UP TO WEB-BASED SOFTWARE

'.Com' offering to provide companies with ability to build business portals

BY CAROL SLIWA

With its ".com" announcement this week, Sun Microsystems Inc. will make a concerted push to get the world to take it seriously as a major player in the Internet-centric software space.

But the Palo Alto, Calif., vendor's latest attempt to shift its image from a hardware-driven company to software maker will be an uphill climb, analysts said.

"Just because you throw up a marketing blitz doesn't make you a software company," said Craig Roth, an analyst at Stamford, Conn.-based Meta Group Inc. "It'll take a sustained presence in this market before companies start thinking of Suo as a software company."

It also will take a change in corporate behavior, said Phil Costa, an analyst at Giga Information Group Inc. in Cambridge, Mass. So far, "they're talking about the right things," Costa said, noting that Sun is changing its sales approach and software support structure and training its employees to deal with both hardware and software offerings.

In its latest marketing push, Sun claims it has all the ingredients to enable a company to build business portals to help it connect with customers, partners, suppliers and employees.

Strategic Server

A central piece of that strategy is Version 5.0 of the NetDynamics application server that Sun will launch this week. The software — which sits in the middle layer of a multitier application — can help companies build applications that help Web clients access back-end databases and services.

To give customers more options, the NetDynamics application server supports rival Microsoft Corp.'s Component Object Model in addition to the Java-centric, multiplatform Common Object Request Broker Architecture that Sun promotes.

Support for Windows will have to continue if Sun wants to be successful on the software side, said Dave Kelly, an analyst at Hurwitz Group Inc. in Framingham, Mass. "There has to be some level of independence in the software division," he said.

Sun acquired NetDynamics Inc. last summer to fill an important gap in its product offerings. A deal that has yet to be finalized with America Online Inc. and Netscape Communications Corp. should take care of another gap — giving Sun access to Netscape's electronic-commerce products and browser and a key vehicle to deliver its Java programming language.

"Ultimately, Sun doesn't have a position in the Internet [market], and it would strike me as likely that for the [money] they contributed to the AOL/Netscape deal, they will end up with some kind of play on the Internet," said Tim Sloane, an analyst at Boston-based Patricia Seybold Group. "But exactly what, how, where, when is all up in the air still."

Kelly said Sun has to overcome the following obstacles:

- Integrating the software it acquires through the pending AOL/Netscape deal.
- Acquiring additional technologies (such as messaging).
- Continuing to build a developer base.

"That's a big challenge," he said.

Two of Sun's major rivals — Microsoft and IBM — have a similar breadth of ".com" offerings to help their customers launch the sort of business portals that help companies exchange information and engage in electronic commerce.

SNAPSHOT

Let's Make a Deal

Where the mergers and acquisitions action is:

INDUSTRY	PAST 12 MONTHS (IN BILLIONS)
Banking	$285
Telecommunications	$203
Media	$138
Oil and gas	$119
High tech	$110
Nonbank financial	$110
Real estate/hotel	$103
Retail	$86
Transportation	$86
Utilities	$30
Chemical	$28
Health care	$28

SOURCE: J. P. MORGAN & CO., NEW YORK

Y2K Firm Sees Future in Enterprise Portals

Larger portal projects pose biggest threat

BY NANCY DILLON

If Jan. 1, 2000, comes and goes without a hitch, year 2000 computer services firms will have served their customers well. Unfortunately, they will have helped put themselves out of business in the process.

But Alydaar Software Corp. has a contingency plan. Last month, the year 2000 software firm in Charlotte, N.C., changed its name to Information Architects Corp. and began to reposition itself as a consulting and services provider in the growing market for "enterprise information portals."

"They have good clients and a good [year 2000] business — but looking down the road, they weren't seeing much upside for their price-to-earnings ratio," said Otto Grote, an analyst at Derby Securities Inc. in New York.

Apparently, investors didn't see much upside, either. Alydaar's stock sailed as high as $19 in March of last year, but by October it was as low as $5.75.

"It's the perception on the street that Y2K is driving this change," said Information Architects CEO Robert Gruder. "But the [enterprise portals] market has a lot to do with legacy integration. So it's not a big stretch for our staff. It's a natural evolution."

An enterprise information portal works by taking internal company information — such as data in legacy systems, enterprise resource planning systems and client/server applications — and making it accessible as an intranet application via a Web browser. One analyst said using a corporate portal is like putting all of a company's data into a searchable Yahoo-like taxonomy.

The total enterprise portal market was about $4.4 billion last year, said Julie Tylman, an analyst at Merrill Lynch & Co. in San Francisco. Tylman said those revenues could reach almost $15 billion by 2002.

She said little-known companies such as Information Architects "will probably face huge challenges" as they attempt to take on large portal projects, although the market is still wide open.

"In general, though, we think the big players like IBM and Oracle [Corp.] will be able to bring all the [portal] elements together a lot faster than companies without such deep pockets," Tylman said.

A Possible Player

Grote said he's impressed with Information Architects' progress so far. "We didn't believe the CEO when he said he was going to make the change. But he's doing it. It will be an uphill battle, but it looks to me like he's made some good acquisitions."

Last month alone, the company acquired Data Systems Network Corp., a network integrator in Farmington Hills, Mich.; Tumble Interactive Media Inc., a Web-design firm in New York; and New York-based Internet service provider Way Communications.

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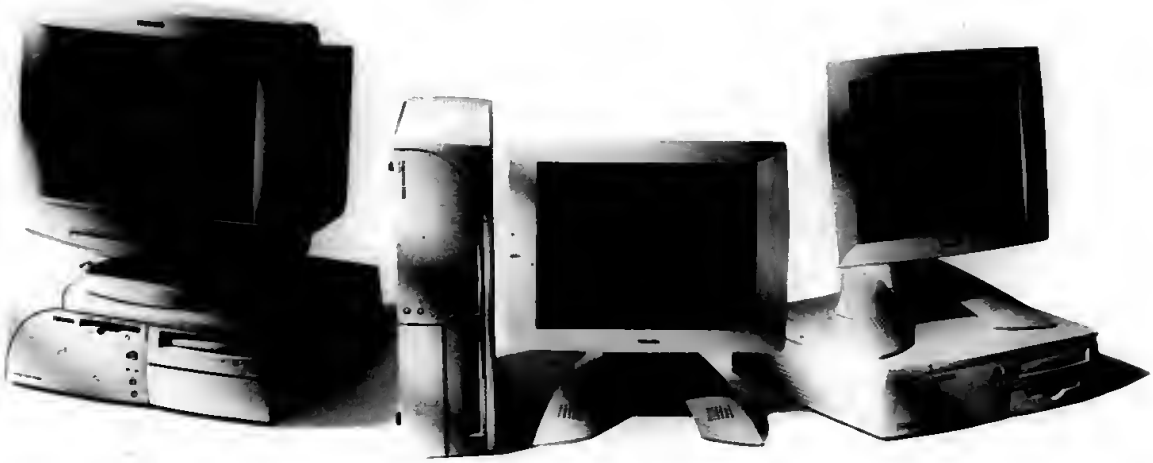

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PAUL GILLIN

The pain of success

CHARLES SCHWAB'S stock trading servers shut down last week for the fourth time in the last two months. ETrade crashed three times in February alone. Ameritrade also suffered a recent outage. Is this any way to run a business? You bet it is. In fact, you should be so lucky as to have such problems. What online brokerages are experiencing are the growing pains of phenomenal success. ETrade's goal is to add 1 million customer accounts this year. Schwab already is processing 60% of its volume online. Call this a paradigm shift, a structural change, a realignment or whatever. An age-old industry is being reinvented under our noses and those companies are leading the way.

PAUL GILLIN is editor in chief of *Computerworld*. You can contact him at paul_gillin@computerworld.com.

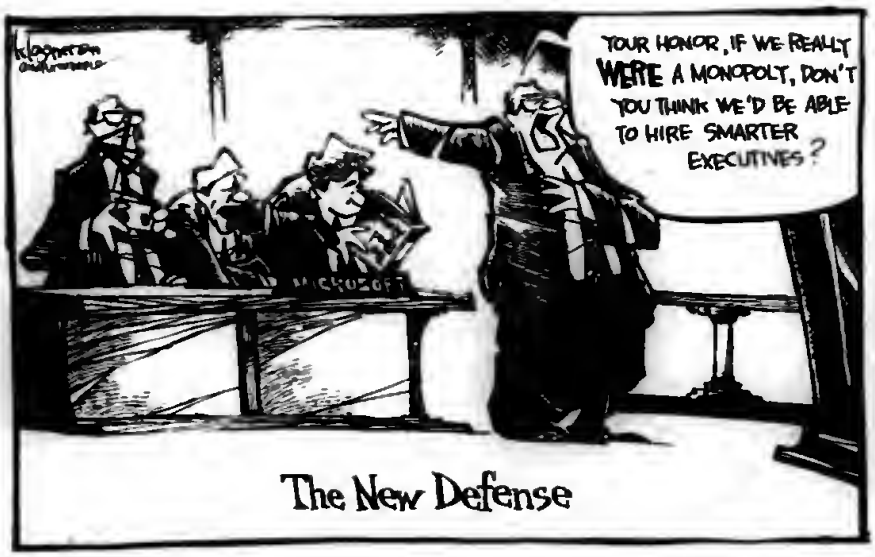
Silicon Valley guru Geoffrey Moore has said he knows a technology company is going to be successful when he starts to hear stories about its customer service problems. That means the company can't keep pace with demand from people who want to use its products. Remember America Online's horrific busy signal problems two years ago? Have you looked at AOL's stock price lately?

The popularity of a new technology always brings with it a revenge effect of disruption and frustration. The risk of an auto accident doesn't stop most of us from driving. Frequent outages in early telephone systems and electrical power grids didn't stop those technologies from spreading. We even put up with Microsoft Windows.

The stock trading failures of the past few weeks won't prevent a certain amount of caterwauling from people who complain that those systems are inherently unreliable. They're right. And you know what? It doesn't matter.

If you're running IT for electronic commerce, get used to uncertainty. IT people are generally paid to make stuff run reliably. But in a quick-change world like this, it's sufficient to put up with a manageable amount of disruption.

No one is going to stop trading online because they couldn't get into their ETrade account for 20 minutes. This stuff is addictive, and Schwab, ETrade, Ameritrade, Datek and others are feeding the habit. Copy their model. ◗



The New Defense

DAN GILLMOR

Why IT execs should pay close attention to Linux

DEAR MR. CIO: Your life is difficult enough already. You're grappling with the ever-alarming Y2K, the ever-later W2K (Windows 2000) and a variety of other crises. And now you have to deal with Linux. It's not that Linux is a bad thing. Far from it. Actually, Linux could be one of the best things to have happened to your enterprise in a long time.

If you have a bright IT staff, Linux has already infiltrated your organization. Somebody's probably running a server or three (maybe part of the iotranet) oo Linux aod other open-source software like Apache. Your staff already knows Linux is a better techoical solution for some jobs than Windows NT — and a lot cheaper.

DAN GILLMOR is technology columnist at the *San Jose Mercury News*. Contact him at dgillmor@sjmercury.com.

Lately, you're hearing the increasing buzz about Linux and wondering if you should pay more attention.

Yes. You should, eveo though you're uncomfortable.

Several issues spark your natural discomfort.

First, Linux is an outgrowth of the free-software movement, with whose political aims you will almost surely disagree. The Free Software Foundation (FSF) (*www.fsf.org*) promotes the idea that software users should be able to freely copy, distribute, modify and pretty much do anything with the code. Admit it: This conflicts with your basic ideas about intellectual property, whatever that is.

But Linux as we know it would not be around in its current form if not for its roots io the GNU project that the FSF's founder, Richard Stallman, launched long ago. Disagree with Stallman's politics if you wish, but admire the results when it comes to Lioux, perhaps better named GNU Linux.

Second, Lioux raises questions of control. If the source code is freely available, it's easier to fix bugs but also easier to muck with it. So establish policies that prevent major problems in your organization.

Third, you haven't fouod in Linux all the applications you expect from a "real" operating system. Well, that's changing, with a velocity that surprises almost everyone.

All the big software companies (except for a company in Redmond that talks a lot about cus-

tomer choice) are porting key software to Linux.

Finally, and maybe most importantly, you would much rather pay for software and know you can call somebody when you need help with it. Until recently that hasn't been simple with Linux.

But that's changing, too — big-time. Look for IBM and Hewlett-Packard and other big hardware vendors to offer 24-by-7 support.

If that's too expensive, check out LinuxCare *(www.linuxcare.com)*, a start-up that's attracted serious money from venture capitalists.

Bottom line: Give Linux a close look.

Yes, it'll add some complications. But it may well be better for some jobs. It also could be the lever you need when your favorite monopolist comes calling with a price hike.

Impress your staff today — and your boss at budget time. ◗

DAVID MOSCHELLA

Microsoft will own Web authoring, thanks to IT's tacit support

BY NOW we should all be used to the pattern. Whenever Microsoft introduces a major new version of its desktop office software, pundits all around the globe tell us that this time, IT buyers will sit on their hands and take their sweet time migrating. The reasons are nearly always the same. The new software is too expensive; the incremental functionality is geared mostly toward power users; the training and installation costs are too high; and the return on investment is questionable.

DAVID MOSCHELLA is an author, independent consultant and weekly columnist for *Computerworld*. Contact him at dmoschella@worldnet.net.

IT, we are told, has more important priorities than rushing out to buy Microsoft's latest and greatest bloatware. This time, the cash spigot will let loose only a trickle.

But as logical as these arguments always sound, they inevitably prove wrong. Between software bundled on new PCs, bearable upgrade prices and the need to maintain compatibility both inside and outside the enterprise, both individual and corporate buyers generally find that it is easier to switch than fight. Dealing with the euro and nailing down the year 2000 situation might delay things for a few months, but they will do little to stop the eventual Office 2000 stampede.

Unlike Office 97, this time the functionality is clearly there. The ability to easily go back and forth between text and HTML formats makes Office 2000 a milestone in word processing, perhaps the biggest advance since the original Windows-based versions. As the Web becomes the world's principal information publishing platform, it will change the very nature of document creation, even the act of writing itself. In the future, when children learn English composition, knowing how to include links and support Web formats will be nearly as fundamental as mastering grammar and syntax.

HTML support will prove even more important in business. Corporations are already feeling the pressure to enable highly distributed Web authoring. They will steadily move away from the idea of running everything through a central Web publishing group. Eventually, all departments and most individuals will need to become their own Web publishers, with Web-ready documents flowing out of our daily work routines. This requires tools that every one of us can use.

All of this means more megabucks for Microsoft. Although its prices often seem high, they are not high enough to trigger a rebellion. For most users, Office 2000 will cost just a few hundred dollars, but when this is multiplied by as many as 100 million copies, the rewards become astronomical. Once again, Microsoft will generate more cash than it can possibly use. The recent class-action-style lawsuits filed against Microsoft in Texas and California won't change this.

Microsoft has several viable office software competitors who make comparable and cheaper products. Is it Microsoft's fault that consumers simply refuse to buy from them?

It's a shame that the word processing, spreadsheet and presentation graphics businesses aren't more competitive. If there were several relatively equal vendors in each area, office software prices would likely fall by an order of magnitude. They might even become advertising-supported in the way that browsers are.

With the rise of both e-mail and HTML, document creation and management are being revolutionized, but alas, it does seem that it will be a revolution brought to you almost exclusively by Microsoft.

As always, the answer is not to stop buying new software, but to support non-Microsoft alternatives. This corporate customers consistently decline to do. Microsoft has a near monopoly on desktop office software because, apparently, that is what customers want. ◗

READERS' LETTERS

Employee retention: The solution is simple

IT WAS very interesting reading about the successes of various IT professionals ["Looking Back," CW, Jan. 4]. I read one statement that seemed to stand out on its own. There is a trend that has been the subject of many headlines, and it was summarized in the portion about Loc Khuu, which states that "nothing can guarantee retention in today's free-agent IT market."

I don't deny that retention is a very difficult, if not impossible, goal. I would like to prove that not all IT professionals need to ride the majority wave.

Personally, I enjoy the stability of being with one company. There are actually a large number of companies (though they remain the minority) that have exactly what it takes to retain talent. The company I work for has done everything right. They pay well. They provide excellent benefits. They guarantee every employee a piece of the company. In the almost two years that I've worked here, I haven't heard one complaint from my coworkers.

The companies that have problems retaining their staff are the ones not willing to go the extra mile. I think if companies tried to care more about their employees than the bottom line figures on their quarterly earnings reports, they would discover this.

Jeremy Likness
Woodstock, Ga.
jlikness@computer.org

When the workweek ends, stop working

I TAKE STRONG exception to the comment, "What do you think weekends are for?" in Susan Kay Rathman's letter on Ed Yourdon's column [CW, Dec. 21].

Weekends are for spending time with your family or whatever leisure time activities you choose.

Weekends are not a pool of unpaid labor that management can use to compensate for poor planning and inadequate staffing.

If from time to time I choose to put in overtime, that does not set a precedent.

Seymour J. Metz
Annandale, Va.
Shmuel@ACM.Org

Job-hunting at shows can be a losing game

I CRINGED when I read the article about finding a job at a conference ["The Trade Show Find-A-Job Game," CW, Jan. 25].

Like the Society for Information Management, the Oracle Applications Users Group (OAUG) doesn't permit any type of recruiting at our conferences, nor do we allow recruiters to attend or join. We're ferocious about enforcing this rule, and we've escorted people out of past conferences for violations.

Your readers should be very, very careful where they play this game, or they could find themselves being escorted out the door. Try explaining that to your manager.

Laura Bray
OAUG Communications Manager
San Antonio
laurabray@oaug.com

More letters, page 38

COMPUTERWORLD welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931. Internet: letters@cw.com. Please include an address and phone number for immediate verification.

J. MICHAEL BROWER

U.S. government must maintain control of Internet

THE U.S. GOVERNMENT is privatizing the Internet — eliminating its benign stewardship and bringing us into the brave new world of voodoo Internet economics. Despite defending the surfing public's interests by sponsoring an initiative to protect online buyers, the White House at the same time has set in motion a policy that will drive up Internet-access costs monopolistically and make Internet access more exclusive.

Through the Commerce Department's National Telecommunications and Information Administration, the Clinton administration in 1997 proposed a nonprofit corporation to manage Internet domains.

J. MICHAEL BROWER is a contracts writer at a federal agency. Contact him at [redacted]

Today, a newly created private entity, the Internet Corporation for Assigned Names and Numbers (ICANN) is eclipsing the Internet Assigned Numbers Authority (IANA), a government-subsidized agency, to control the work formerly done exclusively by Network Solutions Inc.

Users could depend on the Internet — which was created in the U.S. using taxpayer dollars and nurtured by the government to become a key element in the global infrastructure — remaining a stable entity under that system for both individual and business users.

But as a private enterprise, ICANN could be bought or sold, perhaps to an owner unconcerned about ensuring broad access and usage, and perhaps to a foreign company or government that would seek to use the Internet as an economic or political tool.

That's a possibility under the current privatization formula. There's still hope, despite the privatization move.

The contract with Network Solutions has been extended until the autumn of 2000. The privatization effort was to be consummated by Sept. 30, 1998, but (fortunately) still is under study. For the moment, IANA will continue the work of issuing numerical IP addresses and Network Solutions will administer domain name services. Network Solutions will continue to administer domains it has previously distributed.

It isn't too late — nor is it mere neo-pax Americana — to suggest that the Internet be declared a strategic resource by its creator, the U.S. government, and not be left to possible domination by a foreign entity through market manipulation. Maintaining the root server system that maps the domains to IP addresses must stay within the grasp of the same American public whose taxes originally underwrote the Internet.

Ironically, Web privatization will only cause consumers to demand reintroduction of federal oversight. The computing and online-service community can't self-regulate in areas of consumer protection nor with one voice respond to electronic-commerce taxation and encryption challenges. The only reliable guarantor of the Internet as a free medium is the U.S. government in its limited oversight role. Anything less forfeits consumer protection to unscrupulous profiteers and sacrifices the protection of children to the gutterization of the Web.

The U.S. can't afford a global, private-sector dictatorship of this indispensable public resource. The very raison d'être of the Internet is the universal and virtually cost-free exchange of information. Without public oversight, for-profit motivations — in the guise of nonprofit companies — will impinge on our privacy and pocketbooks.

This piece of information technology is ours and it shouldn't be for sale. ◗

LENNY LIEBMANN

Lesson from the toy factory: Treat IT as raw material

MOST ORGANIZATIONS are still struggling to understand the new role information technology is playing in their business. Yes, executives realize that their strategic growth plans now include things like Web commerce and extranet bonding. But IT funding remains relatively flat, especially when it comes to infrastructure. One reason many companies are reluctant to invest more in infrastructure is that it's looked at as, well, *infrastructure*. It's considered "plumbing" and is therefore treated as a fixed-cost budget item like office space or manufacturing equipment.

LENNY LIEBMANN is a partner at IP&D, a Highlands, N.J.-based IT consulting firm. Contact him at [redacted]

But in the New E-conomy, disk space and bandwidth are actually more like raw materials than capital assets. And that's a shift in thinking made by few executives — inside or outside of IT.

Look at it this way. Say you're running a toy factory and demand goes up. Do you get on the phone and order more plastic so you can make more toys? Of course you do. You need that raw material to meet escalating demand. Would you decide not to order more plastic because you only budgeted for *X* tons of the stuff? No! You understand that raw materials represent a variable cost that changes according to market needs.

Similarly, in today's dynamic business-technology environment, things like bandwidth and CPU capacity have become our raw materials. We still have fixed "infrastructure" costs — salaries, network operations centers, development software licenses — but network pipes and Web servers don't necessarily fit into that category. A variable-cost view of IT resources that have conventionally been thought of as fixed assets has a variety of implications that suggest the following courses of action:

1. Stop funding things like Web site capacity out of IT's line-item budget.

If more people come to a site to order stuff, you need to be able to throw more money there without detracting from other fixed IT costs. Does *Computerworld* limit its number of subscribers based on paper and ink budget? Of course not. As IT initiatives generate more revenue, we have to apply the same logic to IT spending.

2. Re-examine chargeback. To use the toy factory analogy again, you don't simply have a corporate budget for plastic. You account for how much of it is being used for each product line. If you have to produce more Beltway Barbies, you charge your additional raw-material costs against that increased production count. You don't simply amortize it across every doll line (including the Special Prosecutor Ken) that's stuck on the shelves. Bandwidth is the same way. If a business unit is producing revenue and can justify higher bandwidth expenses accordingly, accommodate it. But a fixed-enterprise budget that has no link to specific business activities/drivers doesn't make much sense.

3. Redefine outsourcing. Right now, many executives look at outsourcing as a "like-for-like for less" deal. But if you look at network bandwidth and Web site capacity as raw materials, then the question you're really asking is whether you want to have a vertically integrated company. Does a toy company go into the plastic resin business? Maybe, maybe not. But it bases that decision on its need to control the quality and price of its plastic supply and/or whether it can make money selling plastic to other companies. Outsourcing should be a strategic acquisition/divestiture decision, not just a bookkeeping one.

Viewing certain aspects of IT from a raw materials/variable-cost perspective isn't easy, because we still think of systems as furniture ("desktops") and networks as plumbing ("pipes"). They're not. They're really just the visible evidence of the invisible activities they host — the moving, shaping and assembling of bits and bytes to create value.

By getting past preconceptions about what constitutes infrastructure, we can do a better job of focusing on that value creation and make smarter bottom-line business decisions. ◗

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READERS' LETTERS

Readers to Laberis: Claims of age bias in IT aren't always unfounded

I READ Bill Laberis' opinion column several times ["IT age-bias claims ignore workers' priority choices," CW, Jan. 25]. And I grudgingly agree that, yes, he is right on all counts. And yes, the whiners probably need to wake up and smell the coffee, so to speak, and review the choices they have made.

But life is not simply a matter of choices.

Laberis is on top right now. Would he still write the same article if he were on the bottom? Or in the middle?

The distance from the top to the bottom is short, and the trip can be very quick.

John Russo
Bridgeport, Conn
jarusso@peoples.com

I AGREE with much of what was said in Bill Laberis' column on age bias.

However, I am bothered anytime we stereotype people.

Why do we assume younger workers (read "just out of school") have better "skills" and are "more desirable"?

We do a disservice to everyone when we act as if the "hot" skills are the only ones necessary to succeed.

What about the ability to communicate effectively, to analyze problems logically and to design applications that meet real business needs?

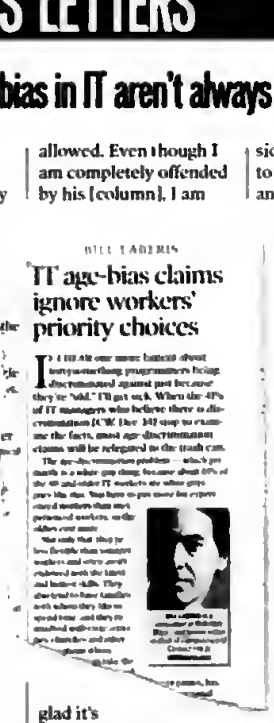
Sure, some older workers need retraining.

Some younger workers need training as well — training that is much harder to get than a course in the latest "hot" skill.

Steve Crim
Director of Information Systems
CTB Inc.
Milford, Ind
scrim@ctbinc.com

BILL LABERIS is unable to see how things could be bad for anyone else and can do nothing but promote the very stereotype we are all seeking to bring down.

Older IT workers are being treated and thought of as an inferior class. If this type of discrimination were being promoted in *Computerworld* against a race or women, such statements wouldn't have been allowed. Even though I am completely offended by his [column], I am glad it's out in the open, where it can be rationally criticized.


BILL LABERIS
IT age-bias claims ignore workers' priority choices

Erik Squires
Bedford, Mass.
erik_squires@hotmail.com

I CONCUR for the most part with Bill Laberis' column about the lamenting of the 40-and-older IT group who complain they are being discriminated against.

This industry has always been one of change, and the professional IT worker needs to continue to change and learn.

However, Mr. Laberis overlooks one point of the argument. The 40-and-older group who come from mainframe backgrounds must fight a constant battle to keep from being "pegged" to mainframe, legacy systems. I have spent my own time and money to take training in client/server, C++, Java and other areas to keep up with new technology. However, interviewers take one look at my résumé and lock in on Cobol and mainframe experience and stop there.

Mr. Laberis says he will get sick if he hears another lament about age discrimination from the 40-and-older group. As for myself, if I hear of another executive who is lamenting about the lack of qualified IT workers while they ignore and refuse to recognize the potential of the 40-and-older group, I think I'll get sick, too.

John Hittle
Dallas
Johittle@flash.net

Tapscott's political punditry out of place

IF DON TAPSCOTT wishes to write as a political pundit, then he should restrict his babble to those issues regarding his own country's government ["It's time to create a conversational democracy," CW, Jan 25].

If *Computerworld* wishes to be a technology publication, it should avoid providing space for the bigotry of the left-wing media.

Steve Buzzard
IS Manager
Ridewell Corp.
Springfield, Mo.

I WAS SORRY to see the column by Doo Tapscott in the Jan. 25 issue.

Mr. Tapscott's views on the presideot's impeachment are grossly out of place in a trade journal like *Computerworld*.

Has *Computerworld* become a forum for political pundits?

Does *Computerworld* endorse Mr. Tapscott's views? Are you changing formats on me?

Another thing that bothers me is that Mr. Tapscott is the chairman of a think tank based in Toronto.

Shouldn't he mind his own country's business?

Please keep *Computerworld* what it always has been, a top-notch trade journal for the IT professional.

John J. Kowalski
Flint, Mich.
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ONE OF your commentators, Doo Tapscott, has been unable to separate his political leanings from his so-called journalistic opinions.

If the Senate trial is so offensive because he chooses to believe the opinion poll palaver, why does he then determine that there are limits upoo direct public influence of Congress?

It seems that Tapscott wishes to avoid "convert[ing] elected officials into mere marionettes . . ." except where his beloved Clinton is concerned!

Come on, CW. Most of us subscribe for integrity of cootent and pertineot opinion — not the likes of Tapscott's personal political opinions.

H. James Bronson
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Escrow coverage welcome, but 'demand' agreements need attention

BRAVO on your article on escrow agreements ["The dangers behind software escrow," CW, Dec. 21]. I've been reading *Computerworld* for a decade, and it was a real pleasure to see an article on the buying and contracting process. It's been an obvious gap in your reporting for a long time.

Brad L. Peterson
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I READ this escrow agreement article with interest because our firm develops and sells software.

However, your article failed to mention a major obstacle to a one-sided "demand" escrow agreement.

I've been in the business for 35 years and would never agree to any type of escrow account unless the client agreed to pay for the source code upon demand at the then-current list price. Our software is sold with or without source code.

It is sold with the source code for $5,000 per module. If we had demand escrow agreements with our clients with no provision for purchase, we'd never sell the source code. Our clients wouldn't have to purchase it, they'd just demand it.

We encourage the purchase of the source code by the client, and all the development work is then done on the client's equipment, so there is never a need for an escrow account.

With the advent of open-source software, we're going to see a movement away from closed-source software, precisely because of the reasons that escrow accounts are popular.

Glenn Jacobson
President
Unique Systems Inc.
Holland, Ohio
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Ignore Microsoft's subpar beta software

GOOD analysis of ArcView vs. MapInfo ["Mapping Your Business Strategy," CW, Jan. 18]. But what the heck was that Microsoft Mappoint 2000 doing in the review? Not only was it a beta product, but it was also in a completely different market segment from the other two.

Either review similar packages from ESRI and MapInfo (BusinessMap from ESRI comes to mind) or leave it out entirely. How many times have consumers gotten confused between a full-featured software package and some crappy beta software from Microsoft. Please do oot encourage this mind-set.

Gary McDermott
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First aid for CW grammar

TRIAGED? ["Year 2000 triage targets: How to lessen the pain," CW, Jan. 18]. "Government agencies have outlined how . . . non-mission-critical systems will be triaged."

Triaged?!? Not in the *American Heritage Dictionary*. I hate it when writers verb their nouns!

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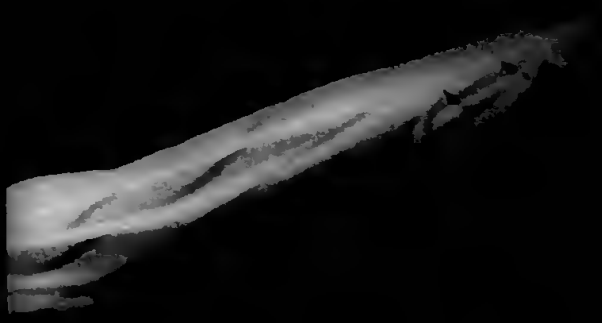
Spring Fever.



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BUSINESS

FIGHTING OVER TALENT

Wal-Mart is suing Amazon.com for hiring away IT people Wal-Mart says have classified technical knowledge of its operation. Who will win? Two experts square off to argue just how much hold a company has over IT people and its trade secrets. ▸ 57

CONTRACTOR UPDATES

Cootracting can be a tough gig, but keeping up oo the latest in fees, salaries and the skills that are in demand can keep your business humming. Here are some online resources to keep yourself and your busioess up to date. ▸ 47

GM DRIVING ONLINE SALES

GM won't talk about its upcoming Web-site enhancemeot. But analysts say that if it uses proprietary informatioo to steer customers to the dealer that has their dream car, it can beat out online leaders that have left it behind. ▸ 43

Y2K AILMENTS

A Senate panel says small health care providers are at unusually high risk for year 2000 problems; 90% of doctors' offices aren't compliant. Providers claim that because they use so little IT, the risk is low. Meanwhile, federal ageocies are cheering their "C+" grades oo preparedness — up from "D"s and "F"s. ▸ 42

WINING ABOUT IT

Can IT update the hide- and cask-bound business of wine making? Once, no one thought so. Today, wineries are wising up, with top-flight business systems and ways to keep a high-level watch oo their grapes. ▸ 48

CROSS-MARKET SURPRISE

In late 1997, franchiser HFS finished a data warehouse it had designed to help cross-market car rental and hotel services; then it was acquired. Now the new, larger company is making that data pay off with targeted direct marketing. ▸ 44

SELLING SAVVY

An IT group that Borden's turned into an indepeodent outsourcing provider two years ago has attracted customers like Dow Chemical and Wendy's by offering its savvy on business functions like payroll, in additioo to technical expertise. ▸ 45

FOREIGN FEVER

The oumber of visas available for foreign IT workers jumped by 50,000 this year, but fees are higher and rules are stricter. IT shops snap them up anyway, figuring fees and paperwork are a cost of doing business during a skills crunch. ▸ 55

MORE

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MONTGOMERY WARD'S MORTON MEASE says the National Retail Federation Year 2000 Survival Committee put competition on hold to collaborate on Y2K issues.

WHERE IS THE WORLD ON Y2K?

IN MOST OF THE WORLD, the year 2000 picture is a bleak one. But competitors in some industries are teaming up to fix global problems and are posting their findings to help other year 2000 project managers. Financial services companies lead the way, but telecoms, airlines and retail groups also are forming alliances to stave off problems from the deadline no one can avoid.

58

BRIEFS

Competitor Comparison

What the nation's top two railroad companies are spending on year 2000

	[illegible]	[illegible]
Fortune 500 rank*	144	147
Estimates of total year 2000 costs	$90M	$87M
Costs through Q3 1998	$38.5M**	$33M

* As of April 27 1998

** Union Pacific said it had spent more than half of its estimated $65M

SOURCE: COMPANIES' NOVEMBER 1998 10-Q FILINGS WITH THE SECURITIES AND EXCHANGE COMMISSION

Railway Starts Testing

The Canadian National Railway Co. in Toronto has awarded Mountain View, Calif.-based Reasoning Inc. a contract to verify the year 2000-readiness of its information systems applications that have been remediated to meet the date change. Reasoning will use its Inspector II tool set to inspect and audit selected Cobol code from the railway's application portfolio.

Health Care Pact

L.A. Care Health Plan, a nonprofit, publicly governed health plan serving Los Angeles, has hired Bethesda, Md.-based Computer Technology Associates Inc. (CTA) to provide it with year 2000 assessment and contingency planning services. Under the terms of the agreement, CTA will assist L.A. Care in evaluating the year 2000-readiness of its seven health plan partners, including Kaiser Permanente Health Plan Inc. and Blue Cross of California.

Utility Is Ready

Avista Corp., a Spokane, Wash.-based electric utility, said it has completed year 2000 testing on all 11 of its power plants. After assessing nearly 11,000 embedded substation components, the company's year 2000 team found fewer than 500 items that had any date-sensitivity - primarily metering, monitoring and data-collection devices.

Feds Get 'C+' Grade for System Readiness

Clinton administration lauds improvement, but critics skeptical of government's progress

BY MATT HAMBLEN

A congressional committee recently gave a "C+" grade to 24 federal agencies for their year 2000 preparedness, winning cheers from the Clinton administration because of the improvement from previous reports. However, one analyst questioned the grade, saying it doesn't make sense for the government to be outperforming the private sector.

U.S. Rep. Stephen Horn (R-Calif.), chairman of the subcommittee that issues the report cards, noted the "truly remarkable progress" during the past three quarterly reports, which were an "F" and two "D" grades, respectively. But he added that "a 'C+' is disappointing."

Grades are assigned to the agencies by the House Subcommittee on Government Management, Information and Technology based primarily on the percentage of mission-critical systems reported to be compliant. Those in the 90%-to-100% range get an "A"; 70% to 82% get a "C"; and 61% or below receive an "F." "Compliant" refers to a system that can process dates properly and has been tested to do so.

March 31 Deadline

Horn said 89% of all 6,404 mission-critical systems in 24 federal agencies should be compliant by March 31. John Koskinen, chairman of the President's Council on Year 2000 Conversion, said he expects the level of compliance to be more than 90%. The original goal was 100% compliance. After March 31, federal systems are supposed to begin extensive testing.

Year 2000 analyst Howard Rubin is skeptical about the government's progress. "It is hard to believe the federal government is now overachieving and exceeding the readiness rate of private industry," said Rubin, president of Rubin Systems Inc. in Pound Ridge, N.Y. He said that, in general, the private sector is running 10% to 30% behind where it expected to be by now.

Cathy Hotka, vice president of information technology at the National Retail Federation (NRF) in Washington, said her organization is impressed that "some federal agencies are doing well." Nonetheless, the NRF's member pharmacies worry about the government's processing of Medicare claims, which could hinder prescription-drug payments, she said.

[illegible] A survey of [illegible] government offices on their year 2000 [illegible]

AGENCY/DEPARTMENT	MAY 1998	FEB 1999
Social Security Administration	A+	A
Nuclear Regulatory Commission	B	A
Environmental Protection Agency	F	A
Health and Human Services	F	C+
Defense	D	C-
State	F	F
Transportation	F	F
Agency for International Development	F	F
Overall	F	C+

SOURCE: U.S. HOUSE SUBCOMMITTEE ON GOVERNMENT MANAGEMENT, INFORMATION AND TECHNOLOGY; ISSUED FEB. 22

DOCTOR OFFICE RISK NOT FATAL

Consultant: Senate concerns of Y2K ignorance no safety threat

BY BARB COLE-GOMOLSKI

THE HEALTH CARE industry recently was singled out by the U.S. Senate as one of the most ill-prepared for year 2000, but that indictment exaggerates the risk to patients, according to industry observers.

According to the Senate's Special Committee on the Year 2000 Technology Problem, 90% of doctors' offices are unaware of the year 2000 bug, and many small hospitals are behind in compliance efforts.

The worry is that even if large health organizations fix their systems, they may become "infected" by exchanging data with doctors' offices or smaller health care providers that haven't.

That's unlikely, according to observers. "The truth is that most doctors' offices are not that technologically complex," said Woody Taylor, a partner at KPMG Healthcare Consulting in White Plains, N.Y. If doctors had electronic links to hospitals, those links would usually be managed by the hospital's information technology department, Taylor said.

In fact, the nation's largest hospitals have made year 2000 a top priority. According to the American Hospital Association (AHA) in Washington, eight out of 10 hospitals will complete their projects sometime this year. The AHA said that the year 2000 matter is placing a big financial burden on hospitals (see chart). It has called on the Food and Drug Administration to encourage medical device manufacturers to report on the year 2000 readiness of their products.

[illegible] 100 beds or fewer $400,000

[illegible] to 300 beds $1.2M

[illegible] to 600 beds $3.4M

[illegible] $8.6M

SOURCE: AMERICAN HOSPITAL ASSOCIATION, WASHINGTON

George Lewis, MIS director at Rural Health Services Consortium Inc. in Rogersville, Tenn., said the company, which acts as an administrator for nine area medical groups, is one of the lucky ones because it has an IT department. Some rural health care systems don't — and have as little as $50,000 to spend fixing their systems and hiring local consultants to do it, he said.

But Lewis doesn't see that as a public health risk. "In the worst case, we would do a lot of our work manually," he said.

"We might not get paid very quickly, but I think that's about the extent of it," Taylor said. "Still, health care is an intricate web of providers, insurers and suppliers, and health systems do have to look outside their own IT departments when assessing their Y2K position."

To that end, health care providers, pharmaceutical companies and insurers working under the auspices of The Odin Group, a research firm in Nashville, last week published a set of guidelines for developing year 2000 contingency plans at health care companies.

Columbia/HCA Healthcare Corp., in Nashville, said it plans to modify the Odin Group plan for its own use. That will involve agreeing with its business partners ahead of time on a set of alternative procedures that would let them function if systems fail. "The goal is to have a common approach across the industry," said Bob Springer, assistant vice president at Columbia/HCA.

CAR-BUYING SITE COULD HELP PUT GM ON THE ROAD AGAIN

Internet could boost automaker's market share, flagging since recent worker strike

BY BOB WALLACE

GENERAL MOTORS Corp. is tight-lipped about BuyPower, the online car-buying service it will debut this week. But experts said it could really stand out against online competitors like Autobytel.com Inc., Microsoft Corp.'s CarPoint, Cars.com and Autoweb.com if it can effectively use information on dealer inventory and pricing that its competitors don't possess.

But without differentiating features, GM's service quickly could be relegated to also-ran status against competing offerings from independent incumbents, experts warned.

Of the Big Three U.S. automakers, GM is ahead of Ford Motor Co., which is piloting an online new-car sales service. DaimlerChrysler also is piloting a service that would let consumers send vehicle configurations to dealers, who would send price quotes via e-mail.

"The Internet is a very powerful tool, which could dramatically improve the efficieocy of the sales process for GM and help it regain the market share it lost during the strike — something GM wants back dearly," said Richard A. Heoderson, auto analyst at the Pershing divisioo of Donaldson, Lufkin & Jenrette Inc. in Jersey City, N.J. GM's share of the U.S. auto market dipped from 30.4% in January 1998 to 28.2% a year later, mostly because of last year's strike, Henderson said.

The ability to scan dealers' new-car inventories would be an attractive enhancement because it would help customers find a dealer that has in stock the specific configuration they're looking for, experts said. The existing services let customers configure their dream car but refers them to local dealers that may not have the car in stock.

STAGE	PEOPLE GOING ONLINE 1998	2003
Research and select vehicle	2.0M	7.9M
Find a dealer and price	800,000	5.2M
Choose financing, insurance and warranty	0.0*	500,000
Close the deal	0.0*	500,000

SOURCE: FORRESTER RESEARCH INC. CAMBRIDGE, MASS.

"Tying in to new-vehicle inventories would change this and be a big potential benefit for GM because none of the independents can do it," said Chris Denove, auto industry analyst at J. D. Power & Associates in Agoura Hills, Calif.

The GM service also could benefit the company by providing pricing information on competing vehicles, which could prevent users from leaving to browse a rival's lineup. "If I'm on the GM site looking at minivans, I want to see pricing for minivans from other companies without having to leave the site," said James McQuivey, an analyst at Forrester Research Inc. in Cambridge, Mass.

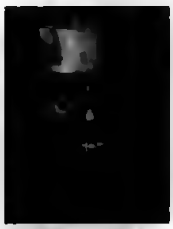
Online shoppers also would welcome easy access to the prices that GM charges dealers for vehicles. But dealers would likely oppose such a feature — even though the information is already available oo the Net — because they prefer to negotiate by starting from the higher sticker price.

"They'll all kick and scream, but it will happen," McQuivey predicted.

Online Shoppers Want On-time Delivery

Service asks buyers about Web experience

How do you know if customers are happy witb online purchases? Ask them, says **Farhad Mohit**, president and CEO of BizRate.com in Los Angeles, a service that queries online buyers about their shopping experiences at Internet stores.



BIZRATE'S FARHAD MOHIT says online shoppers love the product selection

But you have to ask customers if they're still happy when they receive the merchandise, not just when they buy it, says Mohit, whose service has more than 600 Internet stores as subscribers. (BizRate offers basic feedback free to online merchants but charges for more detailed analysis of surveys.) BizRate follows up with a second questionnaire on the date of delivery.

Computerworld senior editor Sharon Machlis spoke with Mohit last week at the Direct Marketing Association's Net.-marketing conference held in Los Angeles.

Q: What are consumers' biggest complaints about shopping online?

A: The biggest front-end complaint is it's not easy enough to order — they make you jump through hoops. It's surprising that sites don't make it easy.

[The biggest] back-end [complaint], far and away: on-time delivery. [Retailers have to] set the expectations and meet the expectations. If you say two weeks and it's [delivered in] two weeks, you're cool. ... You lose 50% of your customers if you don't do something as simple as that. [According to BizRate.com surveys, 85% of those who received their merchandise on time say they would shop at that Internet store again, but only 33% of those who didn't get their order when promised say they would shop at that store again.]

Q: What things make people happiest when they're shopping online?

A: By and large, they love the product selection. A lot of comments are, 'I could never have found this in my hometown.' They like searching a million books, looking at reviews before they buy, listening to music snippets before they buy. These are value-adds.

Q: What issues do you expect Internet retailers to be addressing in the next six to 12 months?

A: Increased competition. There are very few people in the [retail world] who are oot thinking about taking whatever they're doing online. Being disintermediated by manufacturers [takeo out of the sales loop]. We hear from merchants all the time who are worried.

We are steadily seeing a decline in our [consumer satisfaction index]. Consumers have become more savvy online. There is bigher scrutiny and expectations.

Everyone is talking about how the trend is moving from 'land grab' [trying to acquire as much market share as possible] to converting [buyers] into loyal, repeat customers.

I don't subscribe to 'the land grab is over.' There's a plethora of [new] people coming in. You have to do the land grab as well as service the customers you already have.

BRIEFS

Grocer News

Online grocer Peapod Inc. in Skokie, Ill., plans to open a distribution center in the San Francisco area during this year's second quarter, marking the third metropolitan area in which the company has moved from partnering with local grocers to using its own warehouse centers.

No E-mail, Please

The Direct Marketing Association *(www.the-dma.org)* in July will create an "opt-out" e-mail program through which consumers can register to not receive unsolicited commercial e-mail, President and CEO H. Robert Wientzen said last week. The program will be similar to others through which consumers can ask to be taken off telephone and U.S. Postal Service marketing lists.

Portal Reach

A study recently released by International Data Corp. in Framingham, Mass., finds that 22 million home Web users may not be faithful to a particular Internet portal site, but many leading sites are building a loyal user base. "The Power of Portals: Who's Using Them and How" presents metrics for determining the success of Internet portal sites – measurement tools such as audience reach, visit duration and visitor loyalty. The top portal site profiled is Yahoo Inc., with a reach of 47% of the total home population. The research also gives a methodology for determining the cost of obtaining a referred visitor.

Top Types of Online Brand Abuse

1. Unauthorized use of logos and images
2. Use of hidden and visible text
3. Unauthorized use of a company's name or product in metatags
4. Software, music and video piracy
5. Unauthorized distribution or sale of consumer goods

Source: CyberAlert Inc. analysis of millions of Web sites, ranked by frequency and prevalence

BY JOSEPH CYBERALERT INC. ALEXANDRIA VA

VIRTUAL REALITY SAVES ON TRAINING

Productivity, confidence up for new loggers who use it

BY DAVID ORENSTEIN

EVENTUALLY, FORESTRY students at the Education Center in Alvdalen, Sweden, have to train in a real tree harvester, but logging some hours in a virtual reality simulator is proving to be the clear-cut choice for safe and cost-effective training.

This winter, teacher Tomas Wiklund experimented with virtual reality as a teaching tool and said he found that students who first used a simulator were more confident and productive when they started driving the real machine. Students who jumped right into operating the intimidating machine — which cuts down and carries 90-ft. pine trees with a 33-ft. arm — were more nervous and thus more dangerous.

Long a staple in aviation and the military, virtual reality training is only now catching oo in other industries, said Roy Latham, editor of the "Real Time Graphics" newsletter and president of Mountain View, Calif.-based CGSD Corp., a virtual reality research and applications firm.

After some premature enthusiasm about virtual reality technology a few years ago, many companies became disillusioned with mediocre technology that simply didn't simulate reality well enough, Latham said. The industry has had to win back credibility as its technology improved. "We are early in that phase," be said.

Although several universities are actively researching virtual reality training applications, most companies that have invested in virtual reality are more interested in prototyping manufacturing concepts, Latham said. Caterpillar Inc. is one of them, having worked with the University of Illinois for more than four years on virtual reality systems that model products.

VIRTUAL REALITY simulators, like this logging simulator from Partek Corp., are becoming viable training solutions

According to the journal *I/S Analyzer*, Chicago-based Amoco Corp. has used virtual reality for truck-driver training, and Bethel, Conn.-based Duracell Inc. has used it for improving workers' skills on the factory floor.

Wiklund said the simulator is a bit slow and offers only a frontal view but is a worthwhile asset. Experienced operators can find nuances that don't feel right, giving the simulator limited value for more advanced loggers, he added.

But tbe simulator, made by Pargas, Finland-based Partek Corp., accounts for terrain, weather conditions and the size of each tree and log to simulate both normal and dangerous working conditions. The simulator is based on a Silicon Graphics Inc. Onyx2 server and software developed by Montreal-based Lateral Logic Inc. It costs about $100,000 less than a $400,000 harvester, and its 65-in. screen can be used to teach several students at a time.

Wiklund said it also simulates a harvester's onboard computer systems, which calculate where to cut a tree to maximize the value of each log. ▶

A Data Warehouse, 18 Months Later

Cendant cross-markets brands using customer records

BY JAIKUMAR VIJAYAN

A huge data warehouse that $10 billioo franchiser HFS Inc. finished before it was acquired by CUC International Inc. is proving to be a powerful cross-marketing tool for the merged company.

The $5.5 million data warehouse — finished by HFS in August 1997 — is helping the new entity, Cendant Corp., find new opportunities by combining HFS's travel-related operations and the giant direct-marketing business of CUC, said Scott Anderson, executive vice president of sales and marketing at Cendant [CW, Aug. 18, 1997].

CENDANT'S SCOTT ANDERSON says the warehouse has scoped out new opportunities

HFS owns brands including Avis Inc., Howard Johnson International Inc. and Ramada International Hotels & Resorts. CUC, a Stamford, Conn.-based owner of several consumer home-shopping membership clubs, acquired Parsipanny, N.J.-based HFS in late 1997.

Cendant used HFS's database to find that 40% of its time-share customers fly to their destinations (where they might need rental cars) and plan trips about 210 days in advance, meaning they could be reached by direct mail. With that information, Avis was able to offer special discounts and promotions in a campaign to which 22% of time-share customers responded, Andersoo said.

"It has become apparent that each brand has a unique set of customers who have a unique set of psychographics and demographics" that can be targeted with unique services, he said.

That success now is prompting a similar campaign by Cendant's outdoor fishing and hunting club after the discovery that a high percentage of customers at Cendant's Super 8 motels also like to hunt and fish.

Still, a financial scandal, resulting in the exit of several senior Cendant executives last year, may have slowed technology initiatives like these, said Rob Nickoski, an analyst at U.S. Bancorp Piper Jaffray Inc. in Minneapolis.

"They have beeo pretty tight-lipped about some of their cross-marketing [initiatives] recently," Nickoski said. But based on the early success of a similar cross-selling venture that involved Cendant's real-estate and mortgage businesses, "I have reasoo to feel cautiously optimistic," he said.

The warehouse has more than 37 million customer records and 300,000 new ones that pour in monthly; the challenge is to maintain the quality of data and figure out how tu use it, said Herb Edelstein, an analyst Two Crows Corp., a consultancy in Potomac, Md. ▶

Borden IT Morphs into Outsourcer

BY JULIA KING

Elmer's Products Inc. chose to outsource the lion's share of its information technology operations for the same reasons a lot of midsize companies do.

It lacked the technical talent to do the job in-house. It also wanted to concentrate on its core business of manufacturing Crazy Glue and other consumer adhesives.

More unusual was where the $130 million manufacturer turned for help: to a reincarnation of the corporate IT department at its former parent company, Borden Inc. in Columbus, Ohio.

Less than two years after its spin-off from Borden, the multibillion-dollar food conglomerate, Resource Partner Inc. (RPI) has amassed a client base of some 30 midsize companies, including all nine of the independent companies into which Borden was reorganized.

Customers from outside the former Borden's include Dow Chemical Co., Sterling Commerce Inc., Donatos Pizza Inc. and Wendy's International Inc., the fast-food restaurant chain.

Many Offerings

The IT department-turned-outsourcing vendor has significantly expanded its offerings beyond data center operations and network management services. It also offers design, installation, hosting and management of a wide range of enterprise software, including SAP AG, PeopleSoft Inc. and Denver-based J. D. Edwards & Co. applications. Additionally, RPI offers a range of business-process outsourcing services.

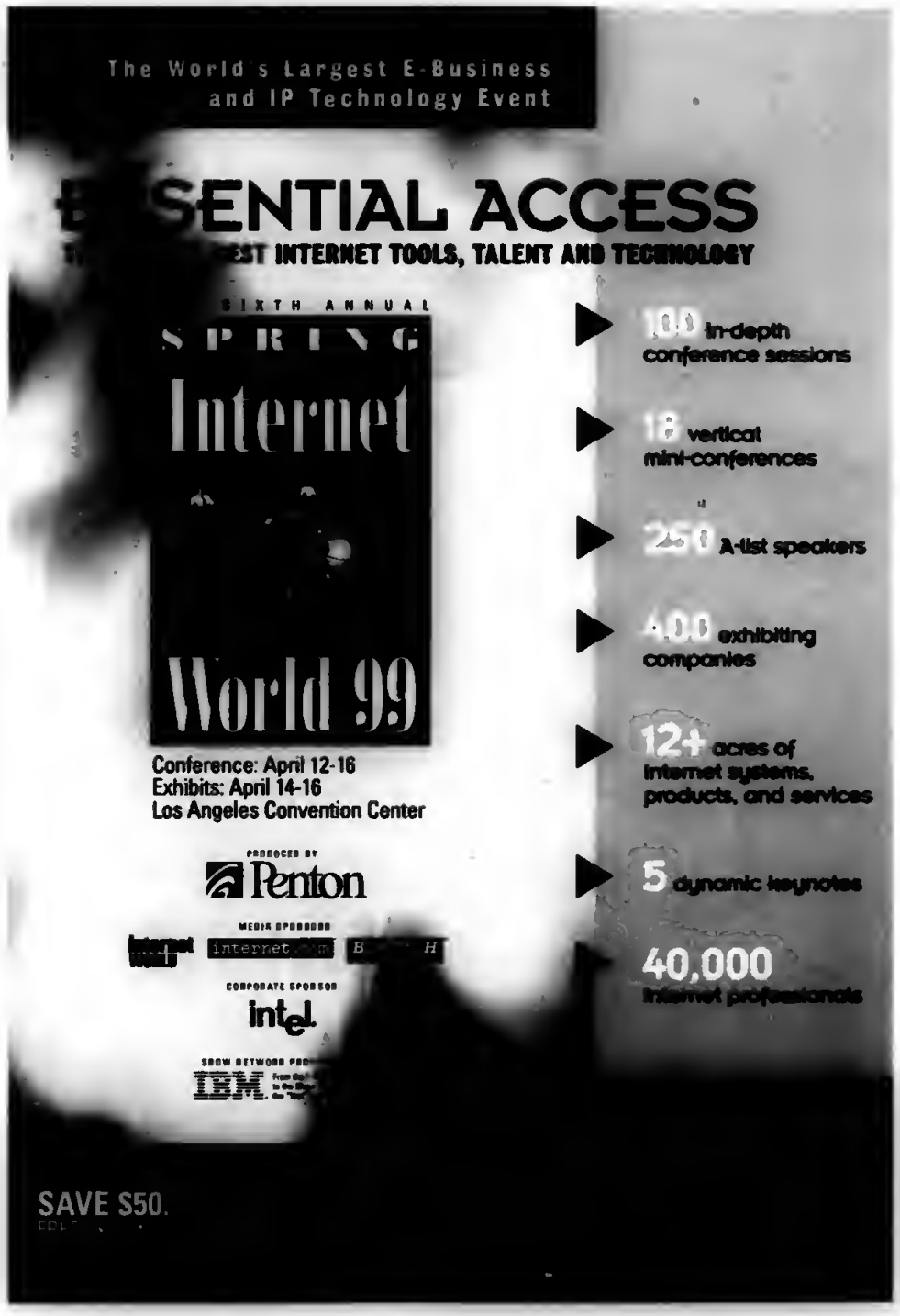
That was a deciding factor for Dooatos Pizza's hiring of RPI, said Mike Sosinski, chief financial officer at Donatos, a 137-store restaurant chain also based in Columbus.

"We were looking for both technical expertise and payroll-and-benefits expertise because there are a lot of [software] interfaces that have to be developed, such as interfaces for direct deposits to banks and interfaces to our group insurance company to pay group premiums," Sosinski said.

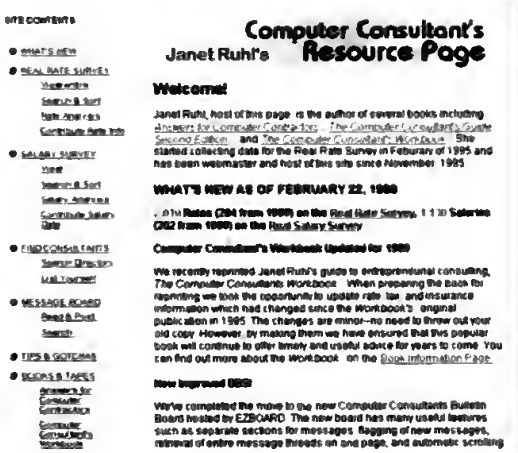
Sosinski fired the original systems integrator the company had hired to install PeopleSoft's financial applications and once again hired RPI, which had implemented Donatos' human resources applications in three months. Because RPI also hosts and manages applications after they're installed, it has great incentive to install them quickly and correctly the first time, according to RPI CEO Randy Kautto.

Compared with other applications and business-process outsourcers such as Electronic Data Systems Corp., RPI is a David among Goliaths.

G2R/Dataquest analyst Roberto Lartigue is projecting RPI will prosper in the growing business-process outsourcing market, which is expected to reach $100 billion by 2002.



COMPUTERWORLD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Computer Consultant's Resource Page
Janet Ruhl's

Welcome!

Janet Ruhl, host of this page, is the author of several books including Answers for Computer Contractors, The Computer Consultant's Guide Second Edition, and The Computer Consultants' Workbook. She started collecting data for the Real Rate Survey in February of 1995 and has been webmaster and host of this site since November 1995.

WHAT'S NEW AS OF FEBRUARY 22, 1999

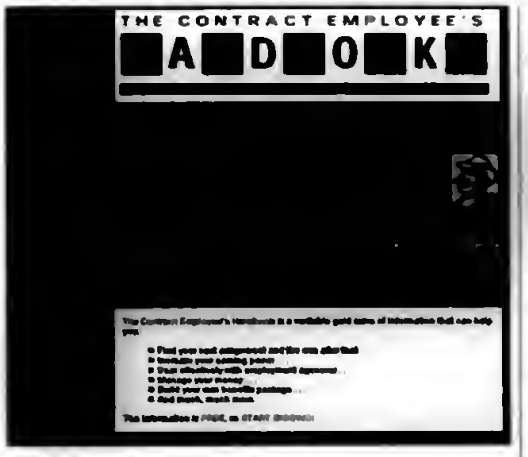
... the Rates (294 from 1999) on the Real Rate Survey, the Salaries (262 from 1999) on the Real Salary Survey.

Computer Consultant's Workbook Updated for 1999

We recently reprinted Janet Ruhl's guide to entrepreneurial consulting, *The Computer Consultants Workbook*. When preparing the book for reprinting we took the opportunity to update rate tax and insurance information which had changed since the Workbook's original publication in 1995. The changes are minor--no need to throw out your old copy. However, by making them we have ensured that this popular book will continue to offer timely and useful advice for years to come. You can find out more about the Workbook on the Book Information Page.

New Improved BBS!

We've completed the move to the new Computer Consultants Bulletin Board hosted by EZBOARD. The new board has many useful features such as separate sections for messages, flagging of new messages, retrieval of entire message threads on one page, and automatic scrolling



Contracting Rates: Evening the Odds

Web sites offer the skinny on how much companies are paying for contractors

BY LESLIE GOFF

CONTRACTING is a gamble — getting the best rate can feel like a crap shoot. But the following Web sites will help you beat the odds:

Lucky 7s

■ DICE & *CONTRACT PROFESSIONAL* 1999 RATE SURVEY
www.dice.com/ratesurvey/index.html

Get the lowdown on hourly rates by skill set, location, education, experience level or status and self-employed direct vs. agency at this easy-to-use, informative site.

Search the data using pulldown menus to hone in on the criteria most important to you. Or refer to the bar charts for a quick, comparative look at annual earnings (30.2% of workers made between $100,000 and $150,000 last year); hours billed per week (the majority billed 40 to 50 hours); number of paid work weeks (nearly a quarter worked 50 weeks); benefits received and who pays (self, spouse, agency or client).

The survey, co-sponsored by job search site Dice.com and *Contract Professional* magazine and published in mid-December, garnered more than 1,000 responses from contractors nationwide. More detailed analysis of the data is at *Contract Professional*'s "1999 Rate Survey and Guide to Contracting" (*www.contractpro.com/cpuarch/1999/rs/ratesurvey.htm*). Click on "The Survey" for a breakdown of respondents and a thorough interpretation of the results.

A number of other relevant articles also are available at the site, including "Benefits at Every Stage of the Continuum" and "Tax Planning for Non-Dummies."

■ JANET RUHL'S COMPUTER CONSULTANT'S RESOURCE PAGE
www.realrates.com

True to its title, many resources for consultants are available here, but the focus is on the real rates that contractors are pulling down.

View a week's worth of data listed by technical specialty or use a menu-driven search form to cull a list of rates from one of more than 2,000 databases that match your specific situation. You also can download a compressed file of all data from the previous 52 weeks.

The weekly charts are somewhat hard to read but include details such as industry, location, job status (W2, corporate or 1099), whether the job is brokered or direct and the rate paid by the client if different from the rate received by the contractor. The search form enables queries by language or platform, location, on-site or off-site, brokered or direct and status and industry.

An analysis of all rates collected during a six-month period also is available, complete with charts and graphs of high, median and low rates and other statistics. For the analysis, Ruhl throws out the five highest and five lowest hourly rates to get an average figure.

Even Money

■ THE CONTRACT EMPLOYEE'S HANDBOOK
www.cehandbook.com/cehandbook/htmlpages/ceh_main.html

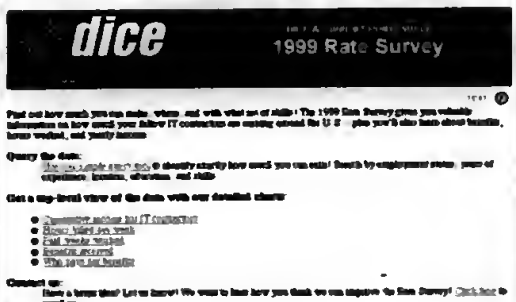
Although no specific rates are listed, this site contains invaluable "how-to" information on all aspects of negotiating rates. Click on "The System" and on "Benefits" in the left-hand frame to get detailed discussions of how contractors are paid, how to calculate what your rate should be, how to increase your rates, how to secure the benefits you need and more. To get the lowdown on establishing 1099 status, click on the "Legal Issues" section.

■ CONTRACT EMPLOYMENT DAILY RATE SURVEY
www.cedaily.com/survey.html

Use your "find" button to navigate this chart of hourly rates. It's haphazardly organized by client in random order. But it does contain the pertinent data that puts rates in perspective, including geographic location, job description and tax status.

If you're weighing a gig at one of the listed clients, you can get the skinny on what others are earning there. Otherwise, it's a decent backup to the more complete information at realrates.com and dice.com. ◗

Goff is a freelance writer in New York. Contact her at lgoff@ix.netcom.com.



EXEC TRACK

Dayton Hudson Corp. in Minneapolis has announced the appointment of BRIGID BONNER to the new post of vice president of electronic commerce, technology and strategy. In this new position, Bonner will be responsible for coordinating the company's diverse electronic retailing initiatives and will report to Jerry Storch, president of credit and new businesses. Bonner had been vice president of network and computer services at Dayton Hudson Information Services.

AlliedSignal Inc. in Morris Township, N.J., has announced the promotion of CIO LARRY E. KITTELBERGER to corporate senior vice president. Kittelberger had served as vice president and CIO since joining the company in 1995. He will continue to oversee AlliedSignal's global information systems organization and will be responsible for advancing the use of technology to support the company's growth and productivity initiatives. He also will continue to lead the company's year 2000 activities and expand its electronic-commerce capabilities.

TradeDimensions, a VNU marketing information services company in Wilton, Conn., has announced the appointment of JIM KLUMP to the newly created position of vice president of database management. Klump will be responsible for managing TradeDimension's electronic database of retail store and account information and providing client consulting services. Klump previously was a principal at Wolfpit Partners, an IT consulting firm.

Pricewaterhouse-Coopers has announced the appointment of ELLEN "LIN" KNAPP as chief knowledge officer and CIO. In her former role, Knapp was vice chairman and chief knowledge officer at Coopers & Lybrand LLP.

IT-SAVVY WINERIES TAKE A GRAPE LEAP FORWARD

Business systems, crop surveillance help vintners maximize yields

BY STEWART DECK

Rooted in soil, steeped in tradition and restrained by an aging process that can't be rushed, U.S. winemakers for many years weren't in a hurry to adopt new technology.

But that's changed in the past decade, since the 1,500 commercial wineries across the U.S. struggled to come back from a major industry recession. Now they seek to optimize business performance.

"Now, anyone with a vineyard over 20 acres uses some kind of data collection methods. And they are just beginning to see the results of their investments pay off in higher-quality grapes," said Richard Cartiere, editor and publisher of *The Wine Market Report*, a Calistoga, Calif.-based wine trade publication.

Levels of technology vary according to the size and sophisticatioo of the operations, but enterprise resource planning applications, wine tank and blend tracking and applications for crop management are popular. Other applications are more exotic: PalmPilots that track vine health; satellite photos to monitor grapes; and in-ground moisture sensors.

Vintage ERP

Like big companies in other industries, some of the largest vintners have branched into corporate systems that handle many business functions. Fetzer Winery, which makes 11.5 million gallons per year, is installing an SAP AG system to replace more than 20 Prime Computers systems it used for everything from order processing to production and distribution.

"We need to forecast our future costs as much as five years in advance and anticipate varietal trends," explained Scott Engel (*scott_engel@b-f.com*), a business systems analyst at Fetzer in Hopland, Calif. "The goal of implementing this is to optimize time and help the upper management make better business decisions."

Delicato Vineyards in Manteca, Calif. — the eighth-largest winery in the U.S., producing 40.4 million gallons per year — also has implemented an SAP-based system. "Our lead times can be as much as six years ... so we have to know everything about our business to balance supply and demand far in advance," said Rita Graham (*frita@delicato.com*), the San Joaquin Valley-based winery's director of information technology.

WINERIES LIKE GALLO AND MONDAVI use technology such as satellite photos to monitor grapes and produce the highest-quality wines

But business forecasts aren't the chief challenge of having such a system; blending the strict business rules inherent in such a system with the craft of winemaking is. "Even with strict standards, we have to preserve variability in winemaking" and leave enough room for the winemakers' creativity, Graham explained.

Gallo Wineries, whose products run the gamut from inexpensive jug wine to fine wines, is the world's largest winemaker, with sales of more than $1 billion and 341 million gallons produced per year. Its use of technology starts with neutron probes that measure soil moisture in the vineyards. It extends upward, combining weather pattern data with aerial and satellite imagery, and geographic information system (GIS) and Global Positioning System satellite information, to track the health and maturity of its crop, said Jock Soper, a Gallo spokesman.

Comparing several years worth of data lets vineyard overseers recommend treatments that range from changes in irrigation patterns to special fanning procedures to keep the vines warm during cold snaps. Adjusting treatments, Soper said, is vital to sustaining the crop, from individual vines to eotire sections of vineyards.

"What we find may lead us to harvest portions of each [vineyard] block at different times to optimize the wines that come from them," Soper explained.

The smaller Chateau Ste. Michelle Winery also keeps a very close eye oo its grapes. Its 13 vineyard observers walk the rows of plants each day looking for mold diseases, insects and growing patterns, keying the data into PalmPilots. The information is downloaded into a customized database every afternoon at the Woodenville, Wash.-based winery, which produces approximately 1.7 million gallons of wine per year.

"We used to do this all on paper, but now we can load the data much faster and quickly fax [plant] treatment recommendations back to the vineyard that same day," said Eric Wylie, an agricultural engineer at Chateau Ste. Michelle.

Aerial View

Other vineyards make their observations from afar: by satellite. Some of the bigger vineyards, including Robert Mondavi Corp., contract with NASA for satellite and aerial photos that show leaf color, density and diseased patches.

That helps growers harvest grapes at the optimum level of ripeness, said Daniel Bosch, vineyard technical manager at Mondavi. Detailed aerial photos also can highlight the right grapes for Reserve wine vintages, Bosch said, whicb can bring in $400 per ton of extra revenue per acre.

The Joseph Phelps Winery in St. Helena, Calif., whicb produces 216,000 gallons per year, doesn't use satellites but does combine digital photography with precise geographical (GIS-based) data so that it can determine appropriate treatmeots for individual vineyard rows and sections.

Then the Sonoma County-based vineyard can thin the plant leaves (giving the grapes more light and air and maturing them faster) or change the soil nutrients as needed, explained Craig Williams, the winemaker at Josepb Phelps.

But where technology really saves Williams' time and reduces headaches is in tracking individual tanks of wine through the complex varietal mixing and blending process.

FETZER WINERY IS INSTALLING an SAP system to handle everything from order processing to production and distribution

> They are just beginning to see ... their investments pay off in higher-quality grapes.
>
> RICHARD CARTIERE, *THE WINE MARKET REPORT*

For a winemaker, keeping precise blending records is akin to a painter keeping logs of exactly how many tiny drops of paint were combined to achieve distinctive brilliant colors.

Several small to midsize California wineries keep their blending and tank tracking data in software called PC Blend from Blend Winery Software LLC in Petaluma, Calif.

The software also helps them make sure strict federal labeling guidelines are followed. Chris Munsell (*fcmunsell@msn.com*), assistant winemaker at Geyser Peak Winery in Geyserville, Calif., said such software also helps Geyser Peak — producer of 2.5 million gallons per year — track the alcohol content in each different tank for tax classifications.

"This type of technology has done wonders here," Munsell said. "Now, I can spend my time making wine rather than sitting at my desk calculating [wine] compositioo changes."

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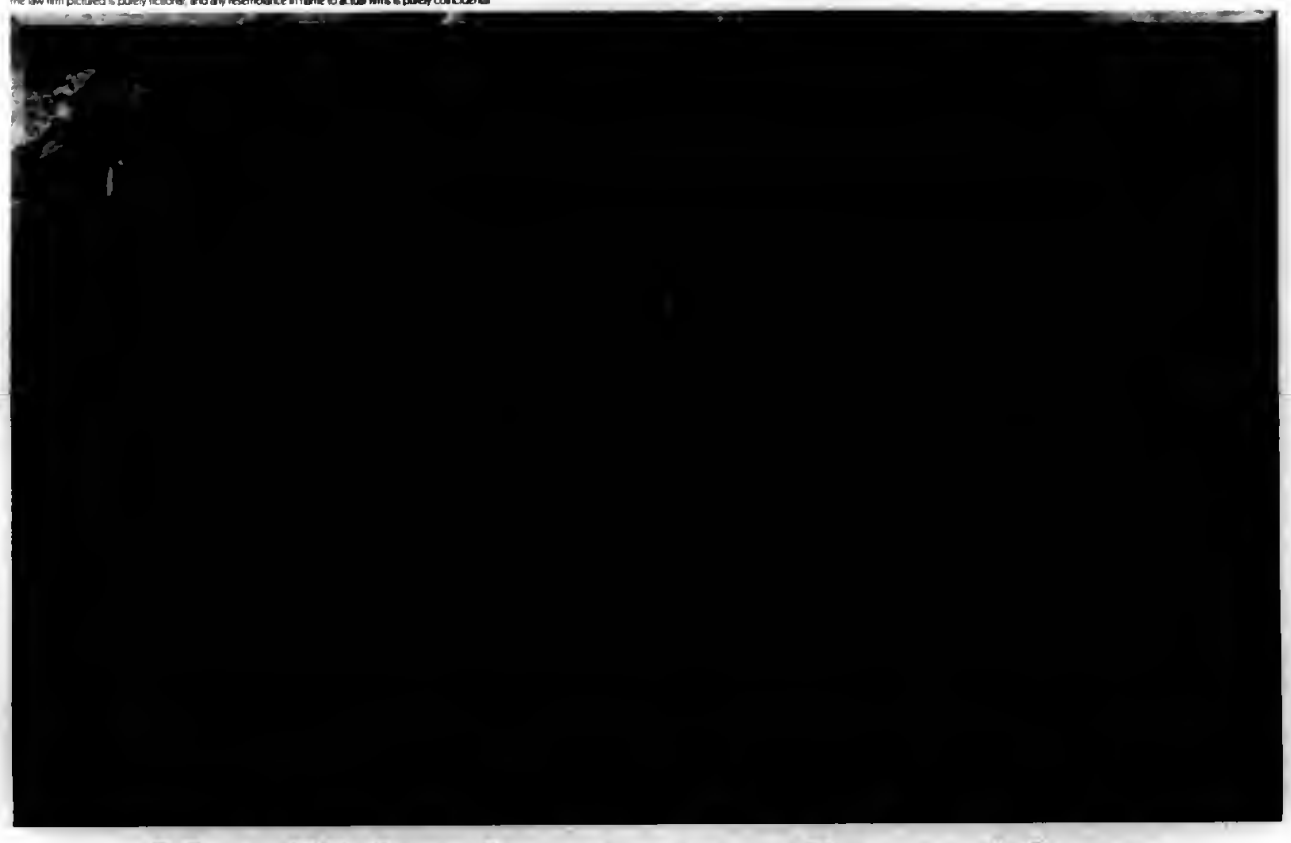

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MOST TRAFFICKED WEB SITES IN HISTORY

IBM's UNIX is working. Last year's U.S. Open tennis Web site handled 383 million hits from 157 different countries.

REI, the Seattle-based retailer of outdoor equipment, has seen its online store become one of its top revenue-producing stores.

CD Warehouse is combining its inventory from over 300 stores into a single database and is making it available online in its entirety.

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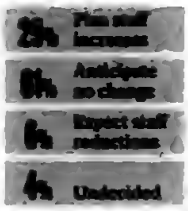
BRIEFS

Hiring Plans

Second quarter 1999 hiring demand



Base: Survey of 18,000 U.S. businesses

CSC Buys Italian Integrator

Computer Sciences Corp. acquired Informatica Group SpA, a $30 million Italian systems integration company. The Turin, Italy-based company's 500 information technology workers will report to CSC's European headquarters in Farnborough, U.K. Informatica Group's clients include Fiat SpA, Esso, Telecom Italia and the Italian Ministry of Defense.

Measuring IT Performance

The Concours Group, a Kingwood, Texas-based IT consultancy, has created a management tool called the IT Dashboard to help organizations measure the performance of an IT organization in the following six categories: employees, internal operations, financials, innovation and learning, customer value and business value. The tool is also intended to provide periodic updates on what's working and what's not in IT shops.

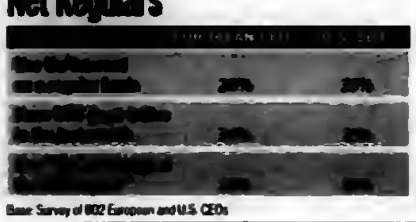
New Books

Two books on business and IT have just been published. Co-authors Tom DeMarco and Timothy Lister have added eight new chapters to their classic on software development projects, teams and people. The second edition of *Peopleware: Productive Projects and Teams* (264 pages, softcover, Dorset House Publishing Co., New York) costs $30.45, postpaid. In *Free, Perfect and Now*, Marshall Industries CEO Robert Rodin tells how the electronics distributor reinvented itself for the Web. The 254-page hardcover (Simon & Schuster, New York) retails for $25.

Read Ads, Earn $

CyberGold Inc. today is slated to launch a Web portal for sellers of "incentives-based" goods. At the site (www.cybergold.com), consumers will earn money or credits toward purchases for responding to advertisements. The site will also feature a section for buying goods such as music, software, maps and news articles at prices starting at 25 cents. Consumers become members of the site with accounts that accrue credits. The portal uses the Net to lower distribution costs so that media content providers can offer potential customers incentives to buy music, video and written works, for example, said Steven Farber, the Berkeley, Calif., company's chief operating officer.

Net Regulars



Base: Survey of 802 European and U.S. CEOs

PETER G. W. KEEN

IT's next target

THE "INFORMATION ECONOMY," "intellectual capital" and related buzzwords really are about four things: Talking, listening, searching and reading. They're the four ways information comes to us. IT has already expanded our information space in the first three. The next opportunity is reading. We expand talking through audio and videoconferencing, e-mail, voice mail and groupware. We expand listening in many ways: through CNN and ESPN, by digitizing and distributing education courses and through conference speakers. Obviously, IT makes it practical and easy to look up information. Just think of the convenience of Amazon.com. And consider AltaVista and Yahoo, which accomplished what the *Encyclopedia Britannica* and your college library never did — made it fun and easy to look things up and play with information.

So far, technology has had little impact on reading. Readers still rely on paper and will do so for years to come. Books, magazines and newspapers offer an ease of access, portability and level of resolution that personal computers still can't match. Take *Computerworld*: It's a primary information medium for its readers, with the Net version a secondary resource. I doubt if more thao a few of its subscribers would, at this time, prefer a fully electronic version.

Over time, the advantages of paper will erode. The first generation of electronic books, sucb as the Rocket Ebook, aren't yet satisfactory substitutes but will get better fast, just as the Apple Newton failure was the dry run for the wonderful PalmPilot. They promise attractive storage capabilities: from 10 to 30 books easily downloaded from the Web. I'm sure they will transform how college students work. Soon — three years at the most — when students register, they'll have all the reading for a semester's courses on the equivalent of a laptop, with facilities for searching and annotating the text.

When this happens, IT will begin to have the same impact on reading as it's having on talking, listening and searching. Think of an electronic Book of the Month Club: What could he the IT equivalent for both IT professionals and businesspeople? What books would IT like its users and clients to browse through? Is there a core library of books that should be distributed across the business?

IT has had little impact on reading so far, but that will change soon.

Take a look at the office bookshelves of any senior business managers you visit. From my own eyeball survey, I don't tbink you will find many books that help you and them build tbe business-IT dialogue your firm needs.

You don't need to wait for e-books. Use technology now to communicate your recommendations. All you need is to add a Books to Read page to any relevant intranet, sign up to he an Amazon Associate and add a message: "To buy any of these books, click here" — where "here" is the link to Amazon.com. Amazon.com even pays you a good commissioo for any sale emanatiog from your site. In this way, you can improve understanding between IT and business by using books to get the IT message across or by directing IT's own attentioo toward the best IT-relevant business books.

Why haven't companies done this, even though many managers use Amazon.com? My guess is that it's because the process of reading physical books isn't seen as part of IT. But it is, and IT doesn't have to develop anything. The authors did that.

Books are the most powerful information catalysts of all. *Das Kapital* and *Mein Kampf* are evidence of that in the political history of this century. *In Search of Excellence* and *Reengineering the Corporation* are business examples. Jeffrey Moore's *The Gorilla Game* and Clayton Christiansen's *The Innovator's Dilemma* are the most influential intellectual forces in Silicon Valley today. What's on your bookshelf is far more of an information asset than what's on your firm's intranet. ▶

Keen is the co-editor of a newsletter called "YOU2K Now." For more information, visit his Web site at www.you2k.com. *His Internet address is peter@peterkeen.com.*

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Better answers.

ABCs & H-1Bs

By Julia King

PATRICIA BARRY LEVY

> Our hope is that the visa cap won't be reached before the end of the fiscal year. If it is, it'll put another damper on our business.
>
> DALE HEIDER, VP, RESOURCE SUPPORT ASSOCIATES

Living with the new H-1B visa regulations in 1999

DALE HEIDER is worried. This year, U.S. employers can hire 50,000 more foreign workers on H-1B visas than in 1998. Yet Heider is concerned it still may not be enough.

Last year, Heider's company, Resource Support Associates Inc. (RSA), a 450-person information technology consulting firm in Englewood, Colo., forfeited an estimated $350,000 in business. The reason? It simply couldn't obtain enough H-1B visas to hire foreign-born IT workers.

This year, "Our hope is the visa cap won't be reached prior to the end of the fiscal year. If it is, it'll put another damper on our business," says Heider, who's the company's vice president of finance and general counsel. Approximately half of RSA's IT workers are foreign nationals.

So even with this year's increase, RSA — like most U.S. IT employers — is wasting no time obtaining H-1B visas for the current year. Indeed, between last Oct. 1 — when the cap was raised to 115,000 visas for the 1999 fiscal year — and December more than 59,000 H-1Bs were issued, according to a December report by the U.S. Immigration and Naturalization Service.

"We still have to rush everything for fear that even the new quota will be hit [before the end of this fiscal year]," says Suzy Nesbill, human resources manager at Cary, N.C.-based SAS Institute Inc. SAS, which develops and sells data warehousing and decision-support software, currently employs approximately 25 IT workers on H-1B visas.

Last year, all 65,000 H-1B visas available under the old cap had been issued by May — a full five months before the end of the 1998 fiscal year. In 1997, the quota was reached before the end of August.

A company must sponsor a particular foreign worker for an H-1B visa. It can't apply for a visa without a specific worker in mind. This year, in addition to raising the cap on visas, Congress also raised their cost significantly. Subsequent to the congressional ruling, known as the Anticompetitive Workforce Improvement Act of 1998, the U.S. Department of Labor also applied a number of new, more stringent H-1B qualifications. These include requiring employers to show that no U.S. worker is available to fill positions for which they want to hire foreign nationals.

Congress instituted a $500 fee when it raised the H-1B cap last summer. The money is placed in a fund to finance training programs for American workers. Additionally, employers pay a $110 filing fee plus attorneys' costs. All told, companies estimate the cost of obtaining an H-1B visa under the new regulations will range from $1,300 to $2,500, including attorneys' fees.

Yet for most IT employers, including Oakdale, Pa.-based Mastech Corp., the additional fee is "simply the price of doing business" in the midst of the ongoing global IT labor shortage, says Sushma Rajagopolan, vice president of global resources.

"Yes, the filing fee has gone up dramatically," Rajagopolan says. Nonetheless, she adds, "we'll continue to recruit from all over the world."

Virtually every kind of company, from retailers to manufacturers, has applied for and obtained H-1B visas for foreign-born IT workers. During the past few years, however, IT consulting and staffing firms have become particularly dependent on H-1B workers.

Paper Glut

At Ciber Information Services in Englewood, Colo., the new, higher fees have meant more paperwork, which eats up more of managers', recruiters' and administrators' time, says Karen Frey, director of recruiting.

"The extra $500 fee for training means more paperwork because that money has to go in with the application. That means getting a check from accounting, then going back to account-

H-1B visas, page 56

History of Visa Caps

1991 First visa cap is introduced

1996 Visa cap is reached for the first time by year's end

1997 Visa cap is reached in August - two months prior to the end of the fiscal year

1998 Visa cap is reached in May, more than five months prior to the end of the fiscal year

1999 Cap raised to 115,000, beginning with fiscal 1999

SOURCE: U.S. BUREAU OF LABOR STATISTICS

ABCs & H-1Bs

Continued from page 55

ing again later to get another check for attorneys' fees," Frey says.

In the final analysis, "it's not so much the increased cost that is the issue, hut for us it's the time commitment. All of the back and forth with paperwork and the phone calls adds up, especially wheo you multiply it hy 100 or more visas a year," Frey says.

At least one IT employer, Kevio Dempsey, director of new business at New York-based Princeton Information, says be's satisfied with the new visa cap. The main reason is that demand for H-1Bs at his company, whose primary business is year 2000 remediation work, is on the wane.

As year 2000 work continues to wind down, "our demand for H-1Bs has actually gone down a little hit," Dempsey says.

> There's a fear among employees from China and India that ... even more people from these countries [will] want green cards.... So the H-1B increase is really a bittersweet pill.
>
> SHEELA MURTHY, IMMIGRATION ATTORNEY

How the H-1B Visa Regulations Have Changed

Under the Old Regulations:

- Visa cap of 65,000
- Fines averaged between $1,000 and $2,000 per violation
- Employers required to certify payment of prevailing market wage rates to H-1B workers
- Labor Department could investigate an employer only after a formal complaint was filed

Under the New Regulations:

- Cap raised to 115,000 for fiscal 1999 and 2000, then drops to 107,500 for fiscal 2001
- Fines can reach $35,000 per violation
- Employers still required to certify payment of prevailing market wage rates
- Employers must pay a new, $500 fee per visa. Money goes into a training fund for U.S. workers
- Labor Department can conduct random checks for five years at companies with previous H-1B violations

How New H-1B Regulations Are Affecting Employees

In 1994, it took all of four weeks for Koteeswar Subramani, a native of Madras, India, to apply for and obtain an H-1B visa through his employer, Ciber Information Services.

In addition to an undergraduate degree in computer science, Subramani held a graduate degree and had more than six years' experience as a programmer. Yet his education never came up during the H-1B applicatioo process.

"Back then, it was all very easy in terms of the number of days it took and the rules and regulations. You could have a degree in art and that would be OK. Or you could have been working in the computer industry without having any degree and that was also acceptable," he recalls.

Today, by contrast, Subramani has colleagues in India who have been waiting more than three months to obtaio visas. They, too, have advanced degrees in computer science plus several years of information technology work experience.

Jobs Are Waiting

They also have U.S. companies that are ready to put them to work immediately. Yet their applications — along with thousands of others — are trapped in a backlog created by last October's raise on the overall cap for H-1Bs.

"The H-1B process has slowed down for a while because there are so many backups from when the quota was reached last spring," says Suzy Nesbill, human resources manager at SAS Institute.

Recruiters and IT managers at other companies also report delays, which disrupt workers' lives, clouding them with uncertainty. Ron Botha, a database administrator from Johannesburg, South Africa, waited almost eight months to obtain his H-1B visa back in December 1997, during a previous application backlog. "It was nerve-wracking for me, but it was even more oerve-wracking for my wife," Botha says. For almost a year, "she dido't know what was going on" or if and when the pair would be picking up to relocate halfway around the world, he says.

Strong Wage Guarantees

The good news is that once foreign workers do arrive stateside, they have even stronger wage guarantees under the new H-1B regulations.

Even under the old rules, employers were required to pay visa holders the same rate they would have paid U.S. workers, were they available.

The new rules, however, significantly expand the U.S. Department of Labor's power to ensure that those rates are iodeed being paid, says Carl Shusterman, an immigration attorney based in Los Angeles.

Now, for example, government officials don't need to wait for an official complaint to be filed before launching an investigatioo of an employer suspected of underpaying workers.

Labor officials also can conduct random checks for five years at companies with previous violations. And fines have been significantly increased, from between $1,000 and $2,000 to as much as $35,000 per violation, Shusterman says.

"This should take care of the [perceived] issue of cheap foreign [IT] labor once and for all because if there are employers abusing the system, we're going to find out very quickly," Shusterman says.

For some workers, however, there remains at least one catch-22 to the new increase in H-1Bs.

It applies specifically to workers from India and China who are looking to obtain a permanent visa, or "green card," once their H-1B expires after a total of six years.

Due to country quotas, there already is a four- to six-year waiting period for green cards for Chinese and Indian workers, said Sheela Murthy, an immigration attorney in Owings Mills, Md.

"Now, by increasing the number of visas from 65,000 to 115,000, there's a fear among employees from China and India that now there will be even more people from these countries who want greeo cards, so the backlog and waiting lists will grow to six or seven years," Murthy says. "So the H-1B increase is really a bittersweet pill."

King is Computerworld's national correspondent.

Does Wal-Mart Have A Case Against Amazon?

Wal-Mart claims Amazon.com stole trade secrets when it recruited 10 IT employees and is taking its complaint to court. Does Wal-Mart have a case? Two experts in technology law argue for each side

Yes!

The core issue at the trial more likely will be whether Wal-Mart took reasonable steps to keep its technology secret from its competitors. The best evidence to prove this comes from Amazon.com's own actions.

DAVID W. JOHNSON, COUNSEL, FENWICK & WEST LLP

BY DAVID W. JOHNSON

WHEN AMAZON.COM Inc. went searching for engineers and managers to design and build a complex data warehousing system, it didn't focus on the talent pool in Seattle; Palo Alto, Calif.; Austin, Texas; or Boston. It went straight to the little town of Bentonville, Ark. Why? Because it wanted a unique and market-tested system, and only one such system existed — in Bentonville, the home of Wal-Mart Stores Inc.

But this complex system, many years and millions of dollars in the making, was Wal-Mart's proprietary trade secret. Amazon.com didn't hire just one or two of Wal-Mart's best information technology employees. Rather, it went to Bentonville to hire no fewer than 10 people, including the CIO. Each of these people had one remarkable similarity — close involvement with Wal-Mart's Retail Link and data-management systems.

The case is filed in the state of Washington, Amazon.com's home. In Washington it's against the law for a company to solicit or obtain by improper means the valuable trade secret information of another company, especially a direct competitor. The odds against these specific 10 people being hired by mere random chance demonstrates a method in Amazon.com's hiring. At trial, a reasonable jury could easily conclude that Amazon.com had executed a calculated, predatory hiring raid in order to improperly acquire Wal-Mart's technology trade secrets.

The core issue at the trial more likely will be whether Wal-Mart took reasonable steps to keep its technology secret from its competitors. Ironically, the best evidence to prove this comes from Amazon.com's own actions. After all, if Wal-Mart had failed to keep its technology secret, rest assured that Amazon.com could have and would have located the information in the public domain and used it to build its own systems — without having to hire even one Wal-Mart employee.

In this case, Amazon.com's risk is to suffer not just a huge damage award, but permanent damage to its trademark and goodwill, which, in the age of electronic commerce, is perhaps its single most valuable asset.

Johnson is of counsel in the Litigation and Intellectual Property Groups at Fenwick & West LLP, a Palo Alto law firm specializing in technology. Contact him at DJohnson@fenwick.com.

No!

Wal-Mart's claims . . . don't appear to involve the protection of any trade secrets.

KENNETH K. DORT, LAW PARTNER, GORDON & GLICKSON PC

BY KENNETH K. DORT

WAL-MART'S ATTEMPT to prevent a group of former IT employees from joining Amazon.com raises far-ranging questions regarding the mobility of skilled technicians in the Information Age. Wal-Mart's case is weak and, if allowed, would create not only bad policy but also bad law.

The law is well-established nationwide that an employer can't prohibit former employees from using their general skills that made them valuable assets. Although officers and directors have a common-law duty not to use trade secrets of their former employers to benefit subsequent employers, courts are very reluctant to apply such a duty to other employees, reasoning that it would likely prevent them from earning a living without bestowing any real benefit on the former employer.

Wal-Mart's claims, therefore, don't appear to involve the protection of any trade secrets. Rather, they seem to be nothing more than an effort to keep talented and valuable employees, or at least to keep them away from competitors. Despite its protests of "secrecy," Wal-Mart fails to provide any evidence or allegations demonstrating either how its alleged secrets are maintained or that any express agreements were entered with any of the former employees to protect those secrets. Further undercutting Wal-Mart's position is an apparent absence of any written agreement identifying either the scope of Wal-Mart's confidential information or the employees' post-employment duties. In short, requesting a court to impose obligations, which in hindsight may have been a good idea — as Wal-Mart does here — creates bad precedent and places the courts in the position of rewriting agreements, a position for which they were never intended and one they routinely reject.

Given the rapid shifts in the IT field, Wal-Mart's success would greatly restrict the market for skilled IT professionals. IT professionals receiving no express outline of their employers' trade secrets nor their post-employment options would be effectively barred from working for competing technology companies (Wal-Mart's case places no time limit on its employees' post-Wal-Mart duties).

The solution is to craft tightly worded restrictive covenants for employees who will be privy to confidential information. Those covenants should specifically outline all covered information and limits on an employee's post-employment options. That way, both employers and employees will know from the outset exactly where they stand.

Dort is a partner at the Chicago law firm of Gordon & Glickson PC. His practice focuses on intellectual property law and technology-related issues. Contact him at kkdort@ggtech.com.

International year 2000 issues have forced competitors to team up to find answers and share them with the world By Kathleen Melymuka

The Hunt for Global

In January, a World Bank report estimated that only 21 of 139 developing countries had taken concrete steps to address the year 2000 problem. The report went on to anticipate year 2000 impacts on power, telecommunications, energy, food distribution and medical care in developing countries.

That bleak picture means another layer of misery for the developing world and additional year 2000 burdens for U.S. companies doing business abroad.

But the good news here is that the scope of the year 2000 problem has forced a few industries to work together to obtain and share information, develop resources and provide help around the world. "We are seeing a lot of good, cooperative efforts," says George R. Juncker, vice president of the Bank Supervision Group at the Federal Reserve Bank of New York and the Fed's point man on year 2000.

By collecting data on infrastructure issues around the world and issuing recommendations, these organizations have, in effect, become general resources for year 2000 project managers everywhere.

FINANCE: The financial community is a leader in year 2000 information sharing, and one of the chief vehicles for international cooperation is the Global 2000 Coordinating Group, representing 234 financial institutions, banks and securities and insurance companies in 46 countries — from Aetna Inc. to the Czech Republic's Zivnostenska Banka. Membership is free.

One subgroup, called Custody 2000, has identified several dozen top custodial institutions that safeguard currency and securities. Each Custody 2000 member is auditing the year 2000 preparedness of several of these custodians, eliminating the need for audits by other institutions. "That's the type of cooperation that will be needed over the balance of the year to get through the date change," Juncker says.

Other subgroups on year 2000 assessment, disclosure, testing and risk management/contingency planning have issued extensive, detailed best practices papers that can benefit not just financial institutions worldwide but other businesses, too. The document on risk management, for example, offers suggestions for handling risks such as simultaneous failures in multiple systems and locations, cascading failures that build on one another and external failures. The paper also includes risk management time lines and checklists, tips for building and running a year 2000 command center and strategies for "wellness checks" of systems after the date change.

All the documents are available for free from the Global 2000 Web site (*www.global2k.com*). Juncker says that kind of sharing is essential because even though the U.S. financial industry is "well-advanced" on year 2000 work, "I would characterize international progress as uneven," he says. "The greatest vulnerability internationally is infrastructure," like energy, telecommunications, power and water.

The group has developed templates for countries to assess their status, and as responses trickle in, it's posting them on its Web site for anyone to read. Global 2000 is planning to use the self-assessments to identify countries, regions and infrastructure elements at greatest risk for year 2000 failure and then engage public- and private-sector assistance.

Given the international situation, Juncker says, "Everyone recognizes there are bound to be problems." So for the rest of the year, Global 2000 will focus on contingency planning, such as helping organizations plan for manual work-arounds and fallbacks.

AIR TRANSPORTATION: For air carriers like Federal Express Corp., the biggest international year 2000 task is assessing "vendors" — the 375 airports the company uses, and air traffic authorities around the world. "The general state of year 2000 awareness fluctuates widely outside the U.S.," says Dinah Allison, managing director of FedEx's year 2000 project. That's why the company and more than 250 other member airlines funded a $20 million year 2000 project through the International Air Transport Association (IATA) last June.

The project is targeting every international airport used by IATA members. It identified more than 120 airport components — from runway lighting systems to fire trucks — likely to be affected by the date change. Then it began sending teams to assess year 2000 progress by walking through the runways and air traffic systems of high-volume airports worldwide.

That information is available to member airlines on a protected Web site so they can plan accordingly. For medium- and low-volume airports, IATA is providing regional training seminars and program support.

The association "has opened doors that couldn't have been opened otherwise," Allison says. "I can't imagine what we'd have done without it."

The IATA also has developed a set of compliance guidelines, including advice for setting up a year 2000 program, staff responsibilities, methodologies, inventory checklists, reporting and monitoring strategies, sample supplier letters and questionnaires, testing recommendations and legal considerations. The entire document is available at *www.iata.org*.

TELECOMMUNICATIONS: The International Telecommunications Union (ITU) Y2K Task Force, established in March 1998, has created a year 2000 workgroup on intercarrier testing. The group recently held a successful, limited, worldwide test. More complex testing is scheduled for later this year.

Last April, the task force distributed a 20-question self-assessment survey. Based on 328 responses from the offices of 287 operators in 132 countries, it has published an overview of individual telecommunications companies' preparedness by country on its Web site (*www.itu.org*), information invaluable to telecom-

munications industries and any company dependent on international communications.

The site includes other features useful to a general audience, such as guidelines on embedded systems and links to other year 2000 organizations.

ITU is using the self-assessment responses to identify regions with the greatest needs.

It has held workshops on four continents; more are planned.

ITU workgroups are looking at information management, contingency planning and relationships with outside groups, and the Web site includes contact information for key people in each group.

Despite those efforts, there's little confidence in the international telecommunications network.

"We are anticipating that many developing countries are not going to make it," says Skip Patterson, year 2000 project manager at Bell Atlantic Corp. in New York.

But working through ITU, Patterson is reasonably confident that at least the most vital links, among the world's primary financial centers, will hold.

RETAIL: Though most international year 2000 groups have grown from well-established international organizations, the U.S. retail industry's effort shows how much a domestic group can achieve.

Because changing fashions preclude stockpiling, information on international preparedness is extremely important to retailers — but hard to get, says Morton Mease, director of planning and technical services at Montgomery Ward & Co. in Chicago. Mease has quizzed overseas organizations, but "the information coming back is very vague and nonspecific," he says, particularly in areas such as the Middle East.

To leverage their information, Mootgomery Ward and 159 other retailers have been sharing it through the National Retail Federation's Year 2000 Survival Committee. Mease says members have put away their competitive attitude to cooperate on year 2000. "We're trying to share rather than waste time and money. This committee has been free and open about things we've done and mistakes we've made."

The committee has published "Ready or Not," an extensive guide to year 2000 best practices, on its Web site (*www.nrf.com*). It also has polled 82,000 international suppliers, including vendors of merchandise and technology, and posted the responses on a protected area for member access. It has met with agencies responsible for international shipping, oil, gas, electricity and telecommunications, but much of its best information has come from its own members.

When retailers visit overseas vendors, they report back to the group on local issues. Members returning from abroad recently reported that their suppliers weren't even thinking about infrastructure issues such as power and communications. "Infrastructure issues have not become part of their year 2000 plans until we raise it," Mease says, "and that's scary."

MORTON MEASE at Montgomery Ward says retailers are trying to share information on global compliance "rather than waste time and money"

Melymuka is Computerworld's *senior editor, management. Contact her at kathleen_melymuka@computerworld.com.*

Web Resources On International Y2K Issues

- The World Bank year 2000 site (**www.worldbank.org/y2k**) includes tool kits for developing countries, links with international year 2000 Web sites and user groups, information on international providers of energy, embedded systems and telecommunications, plus financial services organizations.

- The federal government provides a gateway for year 2000 directories (**www.itpolicy.gsa.gov/mks/yr2000/g7yr2000.htm**). It includes diverse international resources such as year 2000 Web sites for other countries and international organizations.

- The information project office of the European Commission (**www.ispo.cec.be/y2keuro/year2000.htm**) includes extensive year 2000 overviews for Ireland, Sweden, Italy, Denmark, Finland and Greece.

- The Organization for Economic Cooperation and Development (**www.oecd.org**) includes extensive lists of national and international Web sites on year 2000 and year 2000 government contacts for dozens of major countries. Information on readiness by country and sector is dated but still useful for comparison.

- The World Information Technology and Services Alliance (**www.witsa.org**) is working to create a central source for year 2000 information and crisis management assistance.

Glitches

Dear Career Adviser:

Recently you wrote: "The best way to be sure you're always working is to get some experience with a popular, well-entrenched business package and application under your belt, whether PeopleSoft, SAP or Oracle-based — in other words, something really desirable in the marketplace." However, it can be hard to get in the door in those areas.

I, too, have many years of experience but feel shut out of these areas at my own company. Often my employer hires outside consultants over internal people.

If I were Oracle- or PeopleSoft-trained, how hard would it be for me to find employment afterwards? I always see ads that specify one to two years' experience.

Is it worth the risk to spend thousands of dollars on training? Would I take a big cut in pay? — EXPLORING MY OPTIONS

Dear Exploring:

Thanks for responding. Internally, employees do face stiff competition to be selected for this training, with its $10,000 price tag, whether paid for by the employer or you individually. In fact, even companies that use training to motivate and retain employees feel defeated when, a year later, the newly trained person wants a substantial bump in salary or threatens to leave. However, whether your training is through your employer or on your own, companies agree that expertise in these packages is valuable. "Someone who has takeo this initiative shows real merit," says one East Coast hiring manager at a large IT installation.

Remember: If you have hard-core technical (rather than functional) skills, opportunities abound. With training *and* project experience under your belt, consensus says you won't take a pay cut at all: Your career will get a real boost!

Dear Career Adviser:

I would like to know where to find IT jobs that let me telecommute if I'm a systems analyst or programmer. I have an MBA, and I wonder if IT people are in fact telecommuting. Are there more opportunities to telecommute if you're in [a department other than IT], like marketing? I also want to know if companies list telecommuting in their classified ads in newspapers? On Web sites? I am lost. — NO TIME TO DRIVE

Dear Drive:

You're right: Finding IT jobs that allow for telecommuting is hard. In fact, even CareerPath.com, a site that consolidates thousands of job listings from major oewspapers throughout the country, found only two job listings that contained the word telecommuting: one in IT and one from *The New York Times*.

From a recent government study on electronic commerce: "The Department of Transportation estimates that up to 15 million workers may be telecommuting in the oext decade." But the trick is to identify employers that tell you from the get-go that they let you telecommute, and that often happens only during the interview.

But if you aren't sure whether the new company allows telecommuting, be certain they want to hire you before you bring it up, and verify that your role isn't hands-on, day-to-day manageмeot. Then show that you understand and are prepared to fulfill specific tasks and demands of the oew job and will telecommute only after you reach those goals. And don't suggest telecommuting if your new employer is an "all-hands-on-deck" environмeot where everyone stays late.

FRAN QUITEL is an expert in high-tech careers and recruitment. Send questions to her at www.computerworld.com/career_adviser.

Dear Career Adviser:

I am currently employed by a large services firm working on an engagement to develop imaging applications. I'm not sure my current company can find me new work in imaging, which is my most recent expertise, and my client wants to hire me. My salary is above all but the top level of IT staff, and the person offering me the new job is in imaging and related technology only, not IT. I'm 54, in IT for about 30 years and consulting through firms (never independently) for more than 10 years.

Should I move into a corporate environment? What criteria do I use to base my decision and what can I negotiate? When year 2000 dies, will I wind up mixed in with lots of other ex-Cobol, ex-systems people who are client/server (Visual Basic) types competing with newly trained, much lower-cost candidates? — GIMME SHELTER

Dear Shelter:

If you're looking for security in the workplace, definitely don't coast into corporate! You could get pigeonholed, but good.

Debra Berman, senior recruiter at New Dimensions in Technology Inc. in Marblehead, Mass., ootes: "The most important factor in your decision-making process should be related to the technologies you will be learning and using in your new position. So be sure you stay as close as you can to the cutting-edge technologies, and you'll be just fine."

Berman adds that people who accept high-paying assignments using older technologies often return to the market a few years later with inflated salaries and possibly antiquated skills. ▶

WORKSTYLE BRIEFS

Employers

WHERE MBAs WANT TO WORK
Jobs at technology companies are among the most sought-after for people with MBAs from top schools, says a recent report.

A dozen technology firms – the most in any one industry – crowd the list of the 50 employers MBAs most want to work for, according to a report published by VaultReports.com, an online recruiter. It's based on a survey of 256 alumni from top MBA programs such as the Wharton School, Harvard University and the University of California at Los Angeles. Participants were asked to rank 100 companies and describe them.

Marcy Lerner, executive editor at VaultReports.com, said MBAs want to work for technology firms because they seek an environment where they can be entrepreneurial, make a contribution and earn good money. "I think they perceive high tech as the place to do all three of these," she said.

Accompanying the list is what VaultReports.com calls "the buzz" – a representative sampling of how participants view these companies, both good and bad.

"Generally, people have a pretty clear picture of these employers," Lerner said.

For example, among the descriptions for IBM: "Getting back on track"; "venerable, glacial"; "passé"; and "turnaround experts." Microsoft Corp.: "Hated, but the establishment"; "aggressive, demanding"; "killer"; and "cutting-edge, market leader." Netscape Communications Corp.: "Cool, fighting"; "good company going down"; "daring but losing"; and "young, unfocused." Oracle Corp.: "Complainers"; "aggressive, innovative, leading"; "slowing growth"; and "too sales-oriented, not enough marketing." Sun Microsystems Inc.: "Whiners"; "determined, demanding"; "cool culture, but low upside."

Behavior

IT DOESN'T BITE (MUCH)
IT jobs are among the safest in the country, at least as far as on-the-job assaults go, according to the U.S. Bureau of Labor Statistics (see chart). The bureau studied reports of workplace violence – including biting, hitting, kicking and beating – in six occupational categories: managerial/professional; technical/sales/support; service; farming; craft and repair; and operators and laborers.

The technical/sales/support group, which includes most IT jobs, had the fewest incidents in all categories. Those working in service had the most.

The data, culled from the bureau's Occupational Illnesses and Injury survey by the Ohio Casualty Group in Hamilton, Ohio, dates from 1995 but is the most recent available. It recorded almost 1,000 biting incidents, about 2,000 squeezes and scratches and almost 10,000 reports of hits, kicks and beatings.

OCCUPATIONAL TYPE	[illegible]	BITING	[illegible]
Managerial/professional	5,038	285	2,206
Technical/sales	4,233	69	1,988
Service	10,479	580	4,556

SOURCE: U.S. BUREAU OF LABOR STATISTICS, WASHINGTON

TECHNOLOGY

MICROSOFT PUSHES DNA

Many manufacturing operations are on a tight budget when it comes to integrating the different systems in their plants. Some already are seeing the benefits of a manufacturing-specific version of Microsoft's Windows DNA development framework. ▸ 65

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UNDERWHELMED BY IE 5.0

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BRIDGING THE NDS-NT GAP

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With Linux this week's business media darling, columnist Frank Hayes can only chuckle at all the misinformation. There are vital questions to ask about the operating system . . . but whoops, it looks like we're out of time! ▸ 74

QUICKSTUDY: COPPER CHIPS

A new chip design uses copper wiring instead of aluminum, which allows more wires to be placed in a chip — and that means more power. We explain what that could mean for users. ▸ 75

MORE

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JOE FIRMAGE IS OUT THERE

JOSEPH P. FIRMAGE was pure Silicon Valley gold. His $200 million Internet consultancy, USWeb, was going great guns. Then along came a white-robed alien, who hovered over his bed for a chat. So swears Firmage, who has since spent most of his time and money searching for extraterrestrials. He departed USWeb posthaste and weathered a media snicker-storm. Is Joe Firmage a crackpot? A charlatan? Or a true visionary?

76

As with every new piece of enterprise technology, someone has to try it first.

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BRIEFS

IT Sales Management Automation Tool

Evolve Software Inc. has announced a new enterprise software package, ServiceSphere, designed to automate tasks related to selling, managing and delivering information technology services. According to the San Francisco company, tasks include developing project requirements, scheduling workers with particular IT expertise and tracking project progress.

ServiceSphere costs $1,000 per user.

www.evolvesoftware.com

Service Tracks Leads

TargetSmart Inc. has introduced ProspectSmart, software that helps retailers find potential customers. After the user selects demographic and geographic data combinations, the Denver-based company compiles a database of contacts using outside sources. The contacts are then delivered on CD-ROM.

The service costs 10 cents per name or $199 for unlimited names.

www.targetsmart.com

Aladdin Updates Uninstaller for Mac

Aladdin Systems Inc. is shipping Spring Cleaning 3.0, an uninstaller utility for the Macintosh. According to the Watsonville, Calif., company, new features include the ability to restore items, check for damaged files and search for "invisible" files.

Spring Cleaning costs $49.95.

www.aladdinsys.com

Web App Server For Solaris

Pervasive Software Inc. has announced the Tango 3.5 Application Server for Sun Microsystems Inc.'s Solaris operating system. Web application developers using the Tango 3.5 Development Studio now can run their applications on the Solaris platform, according to the Austin, Texas, company. The server can integrate JavaScript, Java classes and JavaBeans.

The server costs $6,995.

www.pervasive.com

MICROSOFT ZEROS IN ON MANUFACTURING

Pitches DNA, Visual Basic as cheap application integration tools

BY CRAIG STEDMAN AND KIM S. NASH

MANY manufacturing operations don't get much money to spend on integrating the different systems that run their plants — and that makes them a natural target for Microsoft Corp.

Microsoft is making a major push to convince cost-conscious manufacturers, and the software vendors that work with them, to build application interfaces with Visual Basic and its other development tools. That effort intensified two weeks ago when Microsoft announced a manufacturing-specific versioo of its Windows DNA development framework [CW, Feb. 4].

New technology wasn't part of the announcement, which mainly was an attempt to package existing tools more cohesively. Even so, some manufacturers are taking Microsoft's advice to heart.

OCEAN SPRAY'S MIKE SMITH keeps a close eye on integration budget

For example, Ocean Spray Cranberries Inc. is using tools such as Visual Basic and Microsoft's Component Object Model (COM) to build a new manufacturing execution system for its eight regional cranberry juice plants and to link the homegrown software to SAP AG's R/3 enterprise resource planning applications.

Mike Smith, national manufacturing systems manager at the Lakeville, Mass., company, said he must justify the investment in the new system at each plant. The Microsoft tools are helping cut costs and development time up to 50% compared with writing procedural C code, he said. In one case, Ocean Spray reused COM objects to extend a software module that manages juice blending so that it also controls the cleaning of pipes and tanks. "Traditionally, that was two completely different sets of code," Smith said. This time, "We didn't have to write the software all over again."

Microsoft products are increasingly popular with manufacturing plants that run on tight budgets, said Bill Swanton, an analyst at AMR Research Inc. in Boston. AMR estimated Windows NT had a 49% share of the market for factory management systems last year and will grow that to more thao 60% this year by continuing to displace Unix and IBM AS/400 setups.

Microsoft's companion development tools also could be an affordable alternative for companies that now shuttle data by "printing out reports and keypunching them into another system," Swanton said.

The Gates Rubber Co., a Denver-based maker of rubber belts, hoses and other products, used to do just that. But Gates now is rolling out a combination of packaged applications that use Microsoft interfaces to pass production schedules and other data back and forth, said program manager George Sebastiani. ◗

Exec Discusses IBM's E-Business Plans, AS/400

Sees initiatives to speed deployment

Q&A

As general manager of sales and marketing at IBM's vast enterprise software group, **William Zeitler** presides over a technology portfolio that includes traditional host operating systems, distributed platforms such as Unix and Microsoft Corp.'s Windows NT, and a fast-growing stable of Web applications.

Zeitler recently spoke with *Computerworld* senior editor Jaikumar Vijayan about the state of the IBM's software business.

Q: What are some specific IBM initiatives to help business partners tap in to electronic-business opportunities?

A: We want to make sure our partners know how to talk about this ... so we have a set of specific marketing campaigns aimed at helping them drive tactical sales. We have an application framework for e-business.

Our Start Now [suite of integrated e-commerce applications] helps them go out with something very specific to their customers and helps them install e-business applications.

Q: What does that mean for customers?

A: Faster deployment and an architecture that will allow them to connect [Web applications] into the rest of the company. We will give them systems that build on what they already have.

IBM'S WILLIAM ZEITLER: "We have an application framework for e-business"

Q: Has the growth of your Windows NT and Unix software business come at the expense of your traditional host operating system revenue?

A: Our strategy is to maintain revenues from our host products and grow NT and Unix. IBM software overall grew by 9% last year. Now, 65% of the business is host and 30% to 35% is from distributed operating systems. When we formed the group four years ago, host operating systems accounted for more than 90% of [software] revenues.

Q: Hasn't middleware been a high-growth area for IBM?

A: There is a big push towards enterprise system management, improving reliability and just improving the returns on IT investments. A lot of companies are moving towards [enterprise application] integration and building on what they already have. It's the reasoo Tivoli has been doing very well for us.

Q: Why has there been such a resurgence of interest in platforms like the AS/400?

A: Part of the resurgence of both these platforms has to do with [the early expectations] around NT. Now everybody is being much more pragmatic about it. I think what the AS/400 [see story, page 83] has dooe well is make itself relevant to the things that are important to the market today. ◗

IE 5.0 ENHANCES WEB EXPERIENCE

New browser improves searching, data management

BY CAROL SLIWA

A WEEK FROM today, Microsoft Corp. will launch the new version of its Internet Explorer browser for Windows and some versions of Unix.

Version 5.0 is expected to give users improved search and management capabilities, a smaller minimum download size and upgraded standards support.

Although corporate users may find those improvements helpful, they probably won't be rushing to install the new browser.

"I've been underwhelmed. It's an evolutionary release. It's not a revolutionary release like IE 4.0 was," said Pamela Edwards, Web administrator at the Richmond, Va.-based Wheat First Union brokerage division of First Union Capital Markets Corp.

Edwards said Wheat First likes to keep its browser lean, so it will use Internet Explorer 5.0 to help give administrators more granular control over the features they install on end users' desktops.

Some data-binding features also will work faster, helping users sort through stock symbols and their prices, Edwards said. But Wheat First doesn't expect to move to the new version until late summer. "Year 2000 is taking precedence before we do any enhancements to existing systems," he said.

Another reason corporate users may wait to move to Internet Explorer 5.0 is because of deployment-management problems associated with rolling out new Internet technology, said Phil Costa, an analyst at Giga Information Group Inc. in Cambridge, Mass. Microsoft rival Netscape Communications Corp. — which last fall released Version 4.5 of its Navigator browser with new features — won't finalize its 5.0 version until later this year. The first public beta is due this spring.

Working through the open-source community, Netscape is revamping its browser engine, now called Gecko, to make it faster, more lightweight and modular.

So far, the Gecko engine is less than 2M bytes in size, as opposed to 9M bytes in the Version 4.0 engine.

Microsoft's browser is getting trimmer, too. The minimum Version 5.0 download will be 6.5M bytes, whereas the Version 4.0 minimum download was 12.3M bytes, a Microsoft spokesperson said.

The 5.0 release will be available on Windows 3.1, 95, 98 and NT 3.5 and 4.0, as well as Sun Microsystems Inc.'s Solaris platform and Hewlett-Packard Co.'s Unix platforms.

New Features In IE 5.0

- Smaller minimum download size: 6.5M bytes (expands to 25M bytes on hard disk). Minimum download for IE 4.0 was 12.3M bytes (expands to 40M bytes on hard disk).
- More granular management controls. Greater ability to pack and choose features, network settings and preferences for end users' desktops.
- Improved standards support for HTML 4.0, Extensible Markup Language, Document Object Model and cascading style sheets.
- Intellisense: Can automatically complete often-used uniform resource locators and choose the best search engine to use.

Sun Server to Offer Jini Component

Open Service Gateway spec will be supported

BY CAROL SLIWA

Sun Microsystems Inc. last week announced that the next major version of its small-footprint Java Embedded Server — which lets users install and change applications in a wide range of devices — will support the Jini networking scheme and an Open Service Gateway specification being worked on by a consortium of 15 vendors.

At its JavaOne Conference in June, Sun officials said, the company plans to release an early-access copy of the new Java Embedded Server, featuring a Jini look-up and registry service component to help service providers install and administer network-based applications in homes and offices.

In the second half of next year, Sun said it plans to add support for the Open Service Gateway specification, which will provide connectivity interfaces for linking data centers to the LAN so that consumer and small business appliances can hook up to Internet services.

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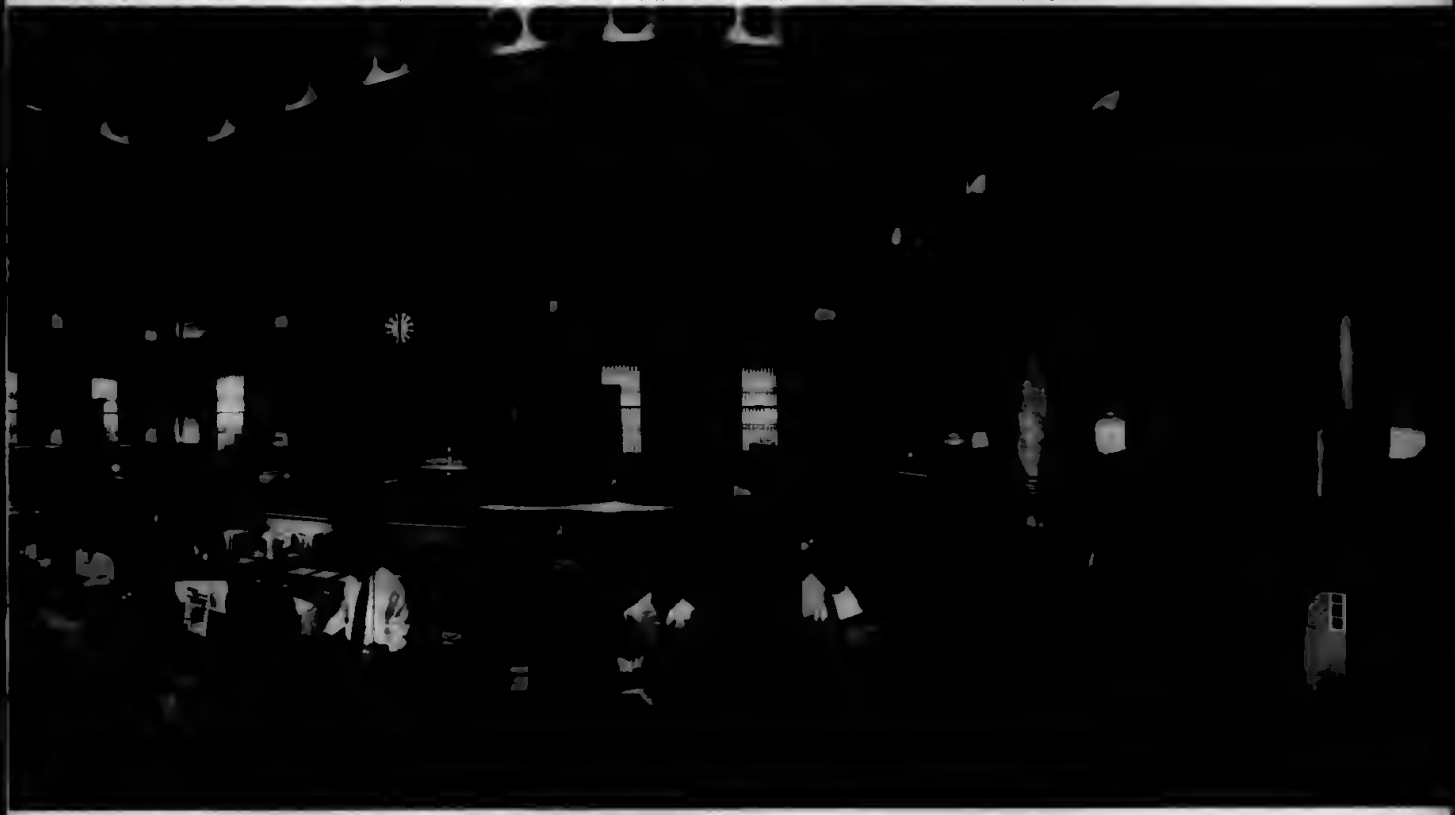

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INTEL'S TECH PUSH MAY OUTPACE USERS' NEEDS

But businesses may see price advantage from constant rollouts

BY GALEN GRUMAN

INTEL CORP. has a dizzying set of technology changes in store for the next several years (see chart). Should you jump on these new technologies or plan your major PC upgrades around Intel's plans?

"Honestly, no," said John Dunkle, a consultant at Workgroup Strategic Services Inc. in Portsmouth, N.H., echoing other analysts.

"I don't believe Pentium III will have as wide acceptance in the next six to 12 months" as Intel hopes, said Brad Day, an analyst at Giga Information Group Inc. in Norwell, Mass. Companies typically upgrade their systems every two or three years — at a fraction of Intel's pace, he said.

Among Intel's major initiatives are faster systems via new processors, buses, memory and other motherboard components.

The biggest benefit to companies may be that Intel's dominance in PC technology means PC makers have little differentiation, thus making pricing their key separator; that gives users "more sources to negotiate a price," Day said. Companies that do decide to buy new systems should think twice if they plan major purchases at the end of this year, said Tony Massimini, an analyst at Semico Research Corp. in Phoenix.

That's because Intel plans to use a new kind of RAM, called Rambus Direct RAM — or RDRAM — a technology the company has acknowledged will likely be in short supply. At its recent developers' forum, Intel suggested that PC makers prepare systems that can accept several types of RAM during that period. But such a strategy could introduce systems-administration headaches, Massimini said.

It may make sense for companies seeking to consolidate several server platforms to adopt the new Intel technology for widely used business applications such as e-mail and accounting, Day said. But for Web hosting, large databases and other historically high-performance, Unix-based systems, the forthcoming 64-bit Intel servers won't be serious contenders, he added. and Motorola Inc. ▶

Intel Corp. recently showed off examples of prettier PCs from Ziba Design in Portland, Ore.

Preparing for the Evolving PC

The following is a road map of how the key components are expected to change in Intel-based PCs in the next three years. Components listed are for advanced models at the time, rather than an average PC. Details, such as speed, are omitted where uncertain.

		Early 1999	Late 1999	Early 2000	Late 2000	Late 2001
DESKTOP	Processor	450-MHz Pentium II	600-MHz-plus Pentium III	800-MHz Pentium III	1-GHz Pentium III	IA-32 (Foster)
	Memory	100-MHz SDRAM	100-MHz RDRAM	133-MHz RDRAM	RDRAM	RDRAM
	Internal buses	33-MHz PCI, AGP 2X, ATA/33, ISA	33-MHz PCI, AGP 4X ATA/33	33-MHz PCI wide, AGP 4X, ATA/66	33-MHz PCI wide, AGP 4X, new ATA	66-MHz PCI wide, NGIO, AGP 4X new ATA
	Ports	PS/2, USB 1.1, 2 serial	PS/2, USB 1.1, 2 serial, AT keyboard, parallel	PS/2, USB 1.1, 1 serial, AT keyboard, parallel, 1394	PS/2, USB 2.0, 1 serial, parallel, 1394	USB 2.0, 1394b
SERVER	Processor	450-MHz Pentium II Xeon	600-MHz-plus Pentium III Xeon	Pentium III Xeon	IA-64 (Merced) or Pentium III Xeon	IA-64 (McKinley) or IA-32 (Foster)
	Memory	100-MHz SDRAM	133-MHz RDRAM	133-MHz RDRAM	RDRAM	RDRAM
	Internal buses	33-MHz PCI wide, AGP 2X, ATA/33, SCSI	33-MHz PCI wide, AGP Pro, ATA/33, SCSI	33-MHz PCI wide, AGP Pro, ATA/66, SCSI	33-MHz PCI wide, NGIO, AGP Pro, ATA/66, SCSI	66-MHz PCI wide, NGIO, AGP Pro, ATA/66

1394-1394-IEEE 1394, also called Firewire; AGP-Advanced Graphics Port; ATA-AT (an old IBM PC model) Attachment (for internal drives); IA-32, IA-64 - Intel Architecture, which will have 32-bit and 64-bit versions; NGIO-Next-Generation I/O; PCI-Peripheral Component Interconnect ("wide" means a 64-bit version, rather than 32-bit); RDRAM-Rambus dynamic random access memory; SCSI-Small Computer Systems Interface; SDRAM-static dynamic random access memory; USB-Universal Serial Bus

BRIEFS

HP Adds Cheap Business PC

Hewlett-Packard Co. is expanding its Brio line with an entry-level business PC. According to the Palo Alto, Calif., company, it comes with an Intel Corp. 333-MHz Celeron processor, a 4.3-G byte hard drive, 32M bytes of synchronous dynamic RAM and Windows 98.

The PC costs about $699.

www.hp.com

Compaq Flat-Panel Monitors

Compaq Computer Corp. has two new flat-panel monitors: the TFT8000, with an 18-in. display supporting resolution up to 1,280 by 1,024 pixels; and the 15-in. TFT5000, which supports resolution up 1,024 by 768 pixels.

The TFT8000 costs $3,100; the TFT5000 costs $1,199.

www.compaq.com

Procom Unveils Two NetFORCE Servers

Procom Technology Inc. has announced NetFORCE 2000 and NetFORCE 2200, two new network-attachable storage servers. The storage systems offer multiple RAID levels and support for file sharing between Unix and NT environments, according to the Santa Ana, Calif., company. The NetFORCE 2000 can house up to 180G bytes; the NetFORCE 2200 can support up to 900G bytes.

A NetFORCE 2000 configured with all 10 drives costs $35,000.

www.procom.com

Quad Research Web Server

Quad Research has introduced the Stratus Web Server. Designed to support up to 100 million page views per day, it has an embedded Windows NT operating system and dual computer boards, load balancing and up to 145G bytes of Fibre Channel storage, according to the Riverside, Calif., company.

Pricing starts at $43,000.

www.quadresearch.com

RETAILER FIRES UP SAN

Burlington Coat, early adopter of storage technology, sees big throughput gains

BY NANCY GILLON
BURLINGTON, N.J.

FIBRE CHANNEL-based storage-area networks (SAN) still may seem bleeding-edge to many mainstream business users, but Burlington Coat Factory Warehouse Corp. has had one sewn up for more than a year now.

"The industry invented the buzzword — SAN — and several months later we realized we already had one in production," said Michael Prince, CIO at the Burlington, N.J., discount clothier.

A SAN takes storage off isolated server buses and places it on a shared, high-speed I/O pipeline such as Fibre Channel. SANs generally comprise servers, distributed storage and networking devices like hubs and switches.

A survey last August of more than 800 large information technology organizations worldwide by New York-based Find/SVP Inc. showed that only 12% were implementing a SAN, 35% were in the planning or evaluation stage and 53% weren't planning for one.

"I don't think we took a risk as early adopters of SANs," Prince said. "SANs are proving themselves part and parcel as the most cost-effective way to build large-scale, managed systems.... In the low-margin, high-pressure business of discount retail, we embraced the technology."

SWITCHED FABRIC may mean one thing to a clothing customer, but to Burlington Coat it's an essential element in managing SAN traffic

Burlington uses three SANs, eacb based on symmetrical multiprocessing Non-Uniform Memory Access (NUMA) servers from Beaverton, Ore.-based Sequent Computer Systems Inc. The company's many databases, divided among the SANs, use about 4T bytes total.

Each server houses 12 processors that connect to a disk pool via two dedicated Fibre Channel switches. Each server also has a dedicated tape backup library plugged in to one of its two switches.

Burlington Coat plans to combine the three SANs into one in about a year, after Prince finishes examining available technologies. "We're not totally there yet in terms of sharing one common I/O system among multiple servers. But our current switched fabric [a technique to route SAN traffic] has given us about a 3x jump in throughput," he said. Furthermore, "with a faster, more reliable infrastructure, we can take people out of the hardware-tweaking business and use them to deliver something with real business value."

The SAN's throughput is letting Burlington Coat Factory add customer-tracking databases to the financial records and inventory databases now housed on the NUMA servers.

Because the switched fabric also offers more redundancy and the ability to schedule preemptive hardware maintenance, it has translated into a "more rational working environment and easier staff retention," Prince said.

Matt Marchione, a systems administrator at Burlington Coat, said he once received six pager calls related to system problems during a single night shift. Since the switched fabric was implemented, he said that number has dropped significantly. "Last week, I think I had two calls all week. I don't have to dread [on-call rotations] anymore," he said.

Prince said he hopes to exploit the distance gains of Fibre Channel in the next year. Soon he plans to open a second data center at the opposite end of Burlington Coat's headquarters property. "It will only be about a half-kilometer away, so I won't be using Fibre's full 10K distance.... But we'll locate half of our disk and half of our processors out there so if one center goes down, we'll be protected. We couldn't do that witb SCSI's limitations," he said.

Suite Links NDS, NT; Eases Shift to Active Directory

Entevo's single console an edge

BY SHARON GAUDIN

Entevo Inc. has introduced a directory-management product designed to tie together the highly disparate worlds of NetWare and Windows NT.

Entevo, in Arlington, Va., broadened its directory-management suite by releasing DirectAdmin V2.0, Direct Migrate for NDS and DirectAdmin NDS Plus Pack. The tools are aimed at helping information technology executives manage their operating systems under one umbrella as they prepare to move to Active Directory in Microsoft Corp.'s forthcoming Windows 2000.

"This is for customers who have decided the Windows 2000 server and Active Directory are where they're headed, and need to manage that transition," said Jamie Lewis, president of The Burton Group in Midvale, Utah. "If you're currently an NT customer, there's a problem with domains — you can't delegate authority very well, or at all. And they're not hierarchical, which is what you'll have with [Active Directory]. That's a tough thing to manage."

Windows NT is built on a flat-file system, without domains or trees. The Windows 2000 operating system will move to a domain system in Active Directory.

NDS, or Novell Directory Services, is Novell Inc.'s operating system directory. Built for NetWare, it has been expanded to handle Unix and NT. NDS for NT reaches into NT's flat files, pulls out information and puts it in domains. Entevo's products, on the other hand, leave the flat files as they are and simply manage them.

Lewis said Entevo, unlike competitors such as Mission Critical Software in Houston and FastLane Technologies Inc. in Halifax, Nova Scotia, gives companies one console from which they can manage NT's flat files, NDS and the Active Directory hierarchy.

And it will help companies move their Windows flat files to Active Directory.

"With this, you can make NT now look like Active Directory," Lewis said. "It's not [a directory], but it's a pseudohierarcby. That will help make the move a little more transparent, because instead of moving from a flat world to hierarchies, you can move from a pseudohierarchy to a hierarchy. It gives you a map."

DirectAdmin 2.0 costs $19 per managed account. Direct-Migrate for NDS costs $10 per managed account. DirectAdmin NDS Plus Pack, set to be released this month, will cost $10 per managed account.

Smooth LAN Switching With Catalyst

BY BOB WALLACE

Why deploy fast, dirt-cheap 10M/100M bit/sec. workgroup LAN switches widely if you don't have a simple and affordable plan for tying them to your backbone network?

To help users with this predicament, Cisco Systems Inc. has introduced a high-density, low-priced Gigabit Ethernet switch that can aggregate traffic from 10M/100M bit/sec. switches onto campus backbone networks.

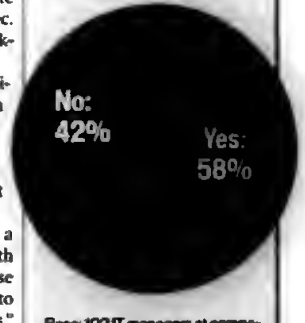
The Catalyst 4912 has 12 Gigabit Ethernet ports, which cost about $1,300 each. They channel traffic from widely deployed 10M/100M bit/sec. LAN switches onto Gigabit Ethernet superhighways.

"Switches like the 4912 are a requirement in networks with tons of 10/100 boxes, because they concentrate traffic into larger Gigabit Ethernet pipes," said Esmeralda Silva, an analyst at International Data Corp. in Framingham, Mass.

SNAPSHOT

Write it Down

Does your company have formal or written security procedures for its systems?



Base: 102 IT managers at companies with 100 or more employees

SOURCE: COMPUTERWORLD IT INTELLIGENCE UNIT FRAMINGHAM, MASS.

BRIEFS

Intrusion Detector

Tripwire Security Systems Inc. last week began to offer free downloads of the Linux Version 2.x of its Tripwire File Integrity Software. The tool provides intrusion detection as well as damage assessment, recovery and forensics, according to the Portland, Ore., company.

www.tripwiresecurity.com

Unix Antivirus Tools

Sophos Inc. has announced the release of its Sophos Anti-Virus software for six versions of Unix: Linux; FreeBSD Inc.; Sun Microsystems Inc.'s Solaris SPARC and Solaris Intel; IBM's AIX for RS6000; and Santa Cruz Operation Inc.'s SCO.

The product includes an application programming interface that allows third-party developers to integrate with Sophos' interface, according to the Woburn, Mass., company.

Prices start at $595 per server.

www.sophos.com

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VeriSign Bundled With Acrobat 4.0

In conjunction with Adobe Systems Inc.'s launch of Acrobat 4.0, VeriSign Inc. is bundling its new VeriSign Document Signer with Acrobat's collaboration and annotation tools.

According to the Mountain View, Calif.-based VeriSign, the product lets users sign an Adobe Portable Document Format document within Acrobat, validating file contents and verifying the identity of the document's author.

The estimated retail price for the bundled product is $249. An upgrade package for Acrobat 2.0 or higher has an estimated retail price of $99.

www.verisign.com

LAN Technology's Help Desk Ace 2.0

LAN Technology Solutions has announced Helpdesk Ace 2.0, software that helps LAN administrators identify and resolve user PC problems.

According to the Camarillo, Calif., company, the client/server software creates trouble tickets using an Access 97 database from Microsoft Corp.

Prices range from $99.95 to $149.95.

www.lan-stuff.com

Token Ring Adapter Card

Olicom Inc. is shipping GoCard 3250, a Token Ring network adapter for CardBus-compliant notebooks.

The adapter card supports remote LAN-initiated wake-up technologies and complies with Microsoft's OnNow specification, which enables instant availability of PCs from powered down states.

It includes a new chip set designed to improve performance over previous-generation 16-bit cards, according to the Richardson, Texas, company.

The card is priced at $298.

www.olicom.com

PROTECTING YOUR WEB SITE AGAINST CREDIT-CARD FRAUD

AI tools can reduce risks, but fresh phony cards are a click away

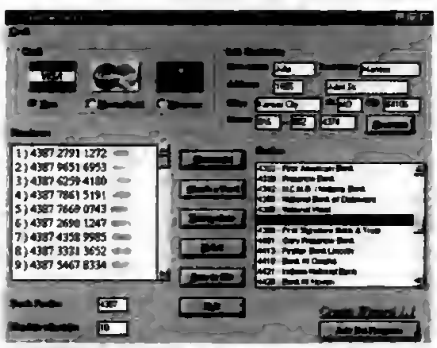
BY CYNTHIA MORGAN

ELECTRONIC-COMMERCE merchants focus on making customers feel safe inside their virtual stores (see story, page 24). But achieving that same level of protection for merchants themselves is a much tougher proposition that IT managers say isn't happening fast enough.

"It's like we've triple-locked the bank vault only to get mugged on the sidewalk outside," said Danny Sullivan, a webmaster who recently uncovered a major online credit-card scam in the U.K.

"One or two people with stolen credit cards can skim the profits right out of a Web site," said Jim Shanks, CIO at computer retailer CDW Computer Centers Inc. in Vernon Hills, Ill.

Think it's tough to steal a credit card? *Computerworld*'s 10-minute Web search turned up a half-dozen credit-card generation applications, bank-identification system guides and instructions for "carding," or using stolen cards. And that's only one method thieves use.



COUNTERFEIT CREDIT CARDS can be created online at sites like this one

How the Crooks Work

Credit-card numbers have a built-in mathematical test, known as a "checksum." Card-generation applications take known bank numbers — the first four digits of a major credit-card number — and generate mathematically valid card numbers that pass the checksum test.

Carding, however, requires extra work to determine if the card is active. It's much easier to purchase stolen cards: A valid credit-card number and expiration date can be had for as little as $25 online, said Ramzi Saffouri, a consultant at fraud-detection software maker Advanced Software Applications Corp. in Pittsburgh.

According to the Federal Bureau of Investigation, you can buy the magnetic stripes and holograms to create a counterfeit card online for about $40 per set (see photo below).

Many commerce sites, especially smaller ones, fail to adequately protect customer databases and are vulnerable to attack by thieves seeking credit-card information, Saffouri said.

Banks and large electronic merchants are well-protected, he said, but "it's much easier to break in to the retailer's system. Increasingly, we're hearing about thieves stealing servers" to obtain credit-card data they hold, he said.

Or a thief may set up a "gypsy" site to steal cards. "They'll claim to be a familiar merchant with unbelievable prices, take orders for a few days, get hundreds of valid cards and then shut down," later selling the information to the highest bidders, Saffouri said.

Other crooks "pretend to be [America Online Inc.] officials and ask for billing confirmation," said Bill Burnham, an electronic-commerce analyst at Credit Suisse First Boston Bank in San Francisco. "There's always a newcomer who'll believe them."

But "you don't have to be a computer genius to steal credit-card numbers — you just have to work in a restaurant or video store," Saffouri pointed out.

Reducing Fraud

"Fraud rates between 8% and 20% aren't unusual for new merchants. But if you follow correct procedures, you can get it below 1% or 2%," said Audri Lanford, owner of Netrageous Inc. in Olney, Md., whose Internet ScamBusters site (*www.scambusters.org*) serves around 50,000 electronic-commerce merchants.

Banks and credit-card processors use artificial intelligence systems to discover anomalies in a cardholder's buying routines. Merchants can buy those services and take the transaction check entirely off-site — a technique experts said is effective but costly.

Even then, "We've learned that you have to have a human behind every Internet transaction, monitoring the process," Shanks said.

"The more it costs, the more someone will try to steal it," said William Headapohl, president of electronic software distributor BuyDirect.com Inc. in San Francisco. "One of our first defenses was not to sell the really expensive products online."

The best defense institutes screening practices based on online retailers' most typical sales. Administrators flag addresses that don't match and other suspicious details. "We triangulate," Headapohl said. "It's just common sense, if they say they're from the U.K., their card is Japanese and the ship-to address is in Beverly Hills, call and check."

Many merchants, including airlines, refuse transactions in which the shipping address doesn't match the billing address on the card.

A high percentage of fraud originates with free e-mail addresses such as those from Microsoft Corp.'s Hotmail and JunoMail from Juno Online Services L.P. Ditto for requests for overnight shipping — after all, what do thieves care about costs?

Banks Chip In

Banks sometimes will assume at least part of the liability for fraud if a merchant agrees to perform additional checks. "If we ship to the same bill-to/ship-to address, we call them to verify and we document that — some banks won't charge us. And our developers agree to reimburse us for our costs in a fraudulent transaction," Headapohl said. "That way, we both lose the profit we would have made, but no more."

Electronic-commerce security managers shouldn't rely too heavily on expiration-date checks, said one industry insider. Some systems test only whether the card has expired, not if the date matches that of the specific card.

Credit-card generators may produce only a few valid cards out of hundreds, so thieves often rapidly rotate large numbers of cards through Web sites.

"They can run 100 or more cards per day," one security specialist said. Sites counter that technique with velocity checks, which filter out sequential card submissions from the same IP address.

International transactions require caution, especially from the former Soviet republics, Netrageous' Lanford said. One merchant now requires first-time buyers overseas to use safer payment methods such as international money orders, while others call the cardholder's bank directly to verify, she said.

MORE FROM THIS ISSUE
For a look at the business impact of online credit-card fraud, **see page 24.**

Fraud Terms Defined

Address Verification System (AVS): A system for matching a cardholder's address with bank records used by several countries, including the U.S. AVS systems generally don't cross national borders.

Carding: Obtaining and using stolen credit-card numbers.

Card generator: Software that can make and sometimes test credit-card numbers.

Cardholder Verification Value: Identification code on a card's magnetic stripe. In a face-to-face transaction, this number must match the corresponding code at the cardholder's bank.

Card-present transaction: Also called a face-to-face transaction, this is a transaction involving the physical credit card, where the merchant has the cardholder's signature and magnetic stripe for authentication. The bank is liable for fraudulent-card-present transactions unless it can prove merchant negligence.

Floor limit: The minimum amount that triggers verification of a transaction. In Europe, the floor limit is the equivalent of $100 in U.S. currency, a $99 transaction isn't verified. There's no U.S. floor limit; all transactions must be authorized.

Gypsy site: A Web site masquerading as a legitimate merchant, promising fabulous deals to those who buy with a credit card. The merchandise doesn't exist; the webmaster collects credit cards for resale.

Mail-Order/Telephone Order: A transaction in which the credit card isn't present, generally in purchases made by mail, telephone or electronically. Because there's no magnetic strip or cardholder signature, the merchant absorbs the loss if the transaction is fraudulent.

Skimming: Capturing the cardholder data encoded on a credit card's magnetic strip for incorporation into a white card.

White card: Illegally reproduced credit card, including its magnetic stripe and hologram.

– Cynthia Morgan

Palms aweigh!

There are updates and accessories galore to pump up the superstar of handheld devices
By Russell Kay

THE PALMPILOT was the first really popular personal digital assistant (PDA), and it has quite a selection of hardware and software accessories, far larger than for any of the original Windows CE handhelds or the newer, palm-size CE machines. So what add-ons does the Palm sport these days? In looking at many accessories, I learned a lot about what makes sense and what doesn't for this class of machine. The highest-tech hardware turned out to be more curiosities and gadgets-for-their-own-sake than helpful accessories (see story below). The hardware that makes a real difference to the Palm user is much more basic: a good case, a better stylus and a way to clean the screen without damaging it.

A Federal Case

When I started carrying a Palm full time a year ago, I soon discarded its plastic screen cover, which usually got in the way. But I still wanted to protect the unit. Looking at other types of cases, I learned that protection comes at a price — that the right case depends a lot on lifestyle and work habits. There's a trade-off between bulk and features. The naked Palm is a slim, shirt-pocket-size unit. Put it in any case, and suddenly it's a lot bigger.

If you're on the go and don't want to be encumbered, the belt-clip models from 3Com, PalmPilot Gear H.Q. and others are a convenient way to go. Of all the cases I tried, those add the least bulk. However, you have to remove the Palm from the case to use it.

The Devian Enterprises DVP8 Supreme Wallet Case ($60) is a nicely made, midsize leather case with a shaped leather pocket for the Palm (there are other models for bare and modem-attached units) along with a notepad, space for stylus or pen and slots for credit cards, cash and more. This case makes no pretense of fitting into a pocket, but it could be a good choice for anyone who routinely carries a briefcase. Of course, if you're into prestige leather, you can get even nicer (and pricier) cases from Dooney & Bourke and Coach Leatherware ranging upward of $100.

I tried two hard-sided cases, HRP Products Inc.'s $20 POD (Protective Organizational Device) made of plastic foam and Rhinoskin Inc.'s $100 Cockpit, made of industrial-style titanium. They offered great protection, but each made an awkward package that was too big for a pocket and lacked carrying clips or straps. Moreover, using the Palm inside these cases was much less convenient than with other styles.

I didn't find any case that offered what I really wanted, but I was happiest with a small leather case (the $22 Copilot from E&B Co.) that also carries a few credit cards. Like most cases, the Copilot makes the pocket-size Palm too bulky. It will fit into a jeans pocket, but it makes a big lump. Still, the Copilot was the best compromise for me.

Stylistic Differences

All the Palm models from the original PalmPilot to the newest Palm V stow their stylus in the unit. For many users, especially those with big fingers, these styli are too short, too lightweight and too thin. The III and IIIx styli are the best of the lot — with a heavier, metal center section — but still awkward. Because the stylus is a primary input device, many accessory styli are available.

I tried an all-metal unit from

the Palm, like most PDAs, can hook into and exchange information with your PC, you've already got a decent keyboard for inputting data albeit through a two-step process. However, if you use the Palm without ever connecting to a PC, this LandWare Inc. keyboard can be very useful.

– *Russell Kay*

Three Short Takes: Sex and the Single PDA

The assignment was exciting: Round up and review the newest, neatest PalmPilot III accessories. Doing it was an eye-opener, though, leading to unexpected conclusions about what's important and what isn't for this PDA. I found that all the highest-tech accessories, the sexiest hardware, worked pretty much as advertised, but I also learned that I didn't particularly want or need to use any of them.

PALM MODEM:
Using the Palm with the $129 3Com 14.4-K bit/sec. modem for e-mail is possible but not nearly as useful as I'd hoped. If all you ever do is get short messages without attachments and send even shorter messages, then the Palm will do. The modem works, the software works, but it's all pretty basic. Using the Palm's Graffiti handwriting recognition for creating long replies wears quickly and caused me to shorten my outgoing messages considerably. That's my observation, and I know folks who feel differently. I also used the modem with AvantGo Inc.'s software for Web browsing. I don't recommend this. It's like the talking dog: The wonder isn't how well it performs but that it performs at all. Without color graphics, a better screen and a faster modem, the Palm platform isn't well-suited to the Web.

PALM NAVIGATOR:
This $40 modem-size attachment from Precision Navigation Inc. turns your Palm into a pretty accurate magnetic compass. You can use it with maps stored on the Palm, but overall it seems of limited use. It doesn't work inside a car, for example. It doesn't claim to be a poor-man's Global Positioning System – and it isn't.

THE GOTYPE KEYBOARD:
A small, $70 keyboard with full-size keys that your Palm plugs directly in to sounds like a convenient alternative to Graffiti handwriting input. But because

Panache PDA ($15) that fit into my Palm III's built-in stylus slot but lacked a projecting rib to help remove it. I really liked writing with this stylus, but getting it out was slow, awkward and frustrating.

Pen-like styli are widely available, including several Cross Peo models at around $30 and up. More interesting, however, is the $30 Platinum Executive from PalmPilot Gear H.Q., which offers the convenience of a PDA stylus, a 0.5-mm pencil and a ballpoint pen in a single, twist-cap stainless-steel unit (colors are $5 more). Less fancy, plastic triple-threat units cost only $8 to $10.

Concept Kitchen recently unveiled a PenCap Stylus, but I'm still most intrigued by its $20 Fingertip Stylus (see photo above). You put this unique and attractive sterling silver cage over your index fingertip, then write with it. It does take a little getting used to, but it's both comfortable and effective. The main drawback is the lack of a pocket clip to stow it when it's not in use.

Clean and Careful

The PalmPilot III screen rarely is bright enough for me, even when backlit, so keeping it clean provides clarity and prevents dust from scratching the screen. Concept Kitchen has an interesting array of products dedicated to PDA maintenance. Its $50 PDA Survival Kit includes the Fingertip Stylus (described above), a year's supply of two-part screen-cleaning pads, special cleaning cloths for daily maintenance and a set of replaceable plastic screen overlays called WriteRights.

These protect the screen against scratching, and their textured surface gives your stylus a more pen-on-paper feel, though they do decrease visual contrast. The kit works with all PDAs, not just Palm products.

Speaking in Tongues

The neatest software I found was Concept Kitchen's Small Talk, an $80 language aid that goes well beyond the usual dictionary model. Available for German, French, Italian, Spanish aod Japanese, Small Talk takes advantage of the Palm's portability.

You tap an icon to select from eight categories: basics, transportation, lodging, money/shopping, emergency, business, food entertainment and social. This brings up subcategories, and another tap gives you a group of questions or statements.

Tap the one you want, and hand the Palm to the person you're communicating with. He sees the query plus several possible replies, all in his language. He selects a reply, taps "translate," and hands the unit back. This is a surprisingly useful way to get some basic needs met in an unfamiliar country.

Where to Get the Stuff

In looking for accessories, I found the Web the best source. Computer superstores generally had few items in stock. 3Com (*www.palmpilot.com*) offers a oumber of accessories, mainly hardware. But the best overall source was PalmPilot Gear H.Q. (*www.pilotgear.com*), which offers a wide variety of accessories and an extensive selection of third-party software. Most Palm-related Web sites are linked in an extensive Web ring.

Tips

- Most Palm software is downloadable in trial versions, so you can determine if it's what you want.
- Surf the Web and the Palm Web ring; you'll be surprised at the variety of software and information available.
- Don't expect too much from your PDA. It's not so much a computer as a really good datebook.

Palm Update: V Earns Victory; X Hits the Spot

Right after finishing the accompanying review of Palm accessories, what should arrive but two brand-new Palm personal digital assistants (PDA) from 3Com that address two of the most annoying problems I've encountered using Palms since their introduction in 1996: poorly lit screen and bulkiness when they're in a carrying case.

The **PALM IIIx** ($369) updates the Palm III's too-dark liquid crystal display with a screen that's noticeably clearer, has more contrast and has a yellowish cast compared with the original greenish-gray. The backlight still isn't as bright as I'd like, but when you switch it on, the display changes to light characters on a dark background, which is more readable in the dark. Also, the IIIx comes with 4M bytes of RAM, double the Palm III's. Overall, the Palm IIIx is a slight but worthwhile improvement over its predecessor.

The $449 **PALM V**, on the other hand, is a new machine that offers the IIIx's better screen quality (different color, slightly smaller but clear and sharp) in a package just half as thick. It manages this trick with an aluminum housing and by eschewing replaceable AAA cells for fixed, rechargeable batteries. 3Com claims the batteries are good for a week of normal use, though I didn't have time to verify this. Putting the V onto its new cradle (which isn't usable with any older PalmPilot, III or even the newest IIIx) will automatically recharge it and let you sync up with your PC. With older Palms, you set screen contrast by turning a small wheel that's prone to inadvertent misadjustment. The V uses a handier software application.

The V's thin profile finally gives the Palm the portability it has needed. Now you can put it in a case that fits in your pocket without stretching the seams. A new 33.6K bit/sec. modem ($169) is a flat package that snaps onto the back of the V, adding only 1/4 in. or so in depth, and a $50 travel kit lets you leave the comparatively bulky cradle at home when you travel. Finally, a note of concern: The standard production unit I reviewed froze up on a few occasions, necessitating a hardware reset. But I never lost any data, and I expect Palm will resolve this problem.

Both the IIIx and the V use the same operating system, PalmOS 3.1. Synchronizing either with the PC was simple and straightforward.

So which Palm should you get? Overall, the IIIx is a good machine, well worth the $70 premium over the now discounted Palm III. But the one you really want to have is the Palm V. It's the most user-friendly Palm yet.

Neither of these new Palms is the ultimate small handheld, though the V is the most powerful and convenient pocket organizer I've used. Palm aficionados are eagerly awaiting the release of the Palm VII, which will incorporate a wireless modem for instant e-mail and Internet service in major population areas. The VII is due out later this year, but given my personal experiences using the Palm III as a communications device, I'll be surprised if the new unit is much more useful overall than the handy, dandy Palm V. – *Russell Kay*

THE PALM V is a bit pricier than the IIIx but is more useful than its cousin

BRIEFS

NT-Based Tivoli NetView

Tivoli Systems Inc. has announced Tivoli NetView-IT Director Edition, network management software for small to midsize businesses. The Windows NT-based software detects and reports device problems on networks with fewer than 1,000 seats, according to the Austin, Texas, division of IBM, and includes a centralized Web-management console.

Pricing starts at $4,995 and includes licensing for 1,000 nodes.

www.tivoli.com

SGI Woos Developers

Silicon Graphics Inc. is migrating some key graphics technologies from its Irix Unix operating system to the open-source community, where developers can freely use them to develop software based on the operating system. The move is seen as part of the company's bid to attract more application developers to its platform – particularly in the low-end graphics market.

Who's Buying What

NEW YORK LIFE INSURANCE CO. said it has selected Vienna, Va.-based MAINCONTROL INC.'s MC/EMpower suite to manage its IT assets and associated business processes. TTI INC., a Fort Worth, Texas, electronics parts distributor, has purchased Raleigh, N.C.-based QSP Inc.'s QSP Financials General Ledger system to automate its major accounting processes. PREMIER INC., a Charlotte, N.C., company that buys goods and services for more than 800 hospitals, said it's buying Contract Administration and Reporting System, software developed by SYSTEMS CONSULTING CO. in Portland, Maine. DIAGEO PLC's United Distillers and Vintners division said it plans to standardize supply-chain planning on software made by MANUGISTICS INC. in Rockville, Md.

Web-to-Host Connectivity

NetManage Inc., a Cupertino, Calif.-based vendor of PC connectivity software, this week is expected to release eNet000, a suite of Web-to-host connectivity products for linking PCs to Unix servers and IBM AS/400s. A single-user interface will let any browser-enabled PC or terminal access data in both environments.

Allied Telesyn Unveils Switch

Allied Telesyn International this week will announce a switch with 24 10M/100M bit/sec. ports and two 100M bit/sec. uplinks. The Sunnyvale, Calif., vendor's AT-8126XL supports Web-based management and virtual LANs on a per-port basis.

The switch is shipping. It costs $2,030.

www.alliedtelesyn.com

Java Appliance Update

More good news for consumer durables that yearn to be Internet devices: A new Java alliance, the Open Service Gateway Specification, intends to create standards for connecting Java-based devices ranging from PCs to washer/dryers (see story, page 66). The alliance includes IBM, Sun Microsystems Inc., Oracle Corp. and other notables. Watch this space for breaking developments.

www.osgi.org

FRANK HAYES/FRANKLY SPEAKING

The Secret of Linux

LAST WEEK WAS LINUXWORLD EXPO. You couldn't help noticing. Every television and radio business show trotted out an expert or two to try to explain just what this Linux thing is. The experts weren't exactly clear. Fortunately, I took notes. According to the experts I heard, Linux is free — except most people pay about $50 for it. And it was written by one guy from Finland — and also a few thousand other people. And they're all working for free — except the ones making money from it. Best of all, the Linux source code is freely available. What's source code? Well, it's sort of like a blueprint, or a set of plans, or a diagram, or — hey, we're out of time!

The mass media did a pretty good job describing the Internet and even Java for ordinary businesspeople. But Linux baffled them. Maybe that's because there's a dirty little secret hidden beneath Linux's open-source, group-developed, hacker-philosophy, buzzword-happy surface.

That secret: Linux is just software.

Not a revolutionary paradigm shift. Not the end of the software industry or even Microsoft. Not a religion, at least not for corporate IT people. Just another piece of software. Is it the product of radical free-software fanatics? Maybe. Who cares? The politics of Linux's programmers matters not at all to a computer. Either it works or it doesn't. It runs or it crashes.

Giveaway software isn't exactly a radical idea these days. Just ask those wild-eyed anarchists at Netscape, Sun, Microsoft and IBM. And providing source code isn't just an old notion, it's positively ancient — IBM did it routinely until the 1980s.

Linux isn't even free — not for corporate IT shops, anyhow. Add up the costs of installation, testing, support, training and the political infighting that comes with any new technology in an IT shop, and your total cost of running Linux is about the same as NT, Unix or anything else. The "free" sticker price is a tiny fraction of that cost.

No wonder big vendors — IBM, Hewlett-Packard, Compaq, Sun, SAP — are lined up for Linux. It sounds radical, hip and free. In practice, it's still just software. IT customers will kick the tires, run it through evaluations and try it on pilot projects just as we would with any other product.

That's all. Not exactly revolutionary.

Unfortunately, all the bafflegab tends to obscure the few questions we should be asking about Linux. Should you pay for outside support? (Probably, unless you want to be in the operating system business.) Should you let your in-house developers make changes to the source code? (Probably not, unless you love version-control hell.) Is there any real benefit to having source code? (With it, vendors can't force you to upgrade to the current version just to get a bug fixed — a tactic many users faced when doing their Y2K fixes.) Should I really consider software written piecemeal by thousands of programmers in an anarchic development setting? (Well, you're looking at Windows 2000, aren't you?)

This week's media darling harbors a dirty little secret: It's only software.

Those aren't questions the mass media is going to answer for an ordinary business audience. They're IT-shop questions. And despite all the hype, hope and hoopla, Linux simply isn't something TV and radio can explain to a mainstream audience in three minutes of sound bites.

Maybe by the next Linux bash, they'll figure that out. And we won't have experts all over the tube explaining to ordinary folks that source code is really more like a movie script — whoops, we're outta time!

Hayes, Computerworld's staff columnist, has been looking for a good way to explain source code for 20 years. His e-mail address is frank_hayes@computerworld.com.

Copper Microprocessors

BY APRIL JACOBS

IN THE RACE for faster processors at lower prices, IBM marched forward last year and introduced a copper-based chip that provides a smaller and faster generation of microprocessors.

In a nutshell, a copper-based chip, as opposed to the traditional aluminum-based chip, contains copper wiring.

The wiring within a chip connects the transistors to one another. The transistors are basically the brains of the chip.

Thinner is Better

The main benefit of copper-based wiring is that copper is a good conductor of electricity, so wires can be much thinner than aluminum and each chip can hold more transistors, making the chip smaller.

In processor technology, microns measure the distance between each component. One micron equals one thousandth of a millimeter — a micron is so small that one human hair is about 50 microns wide.

The shorter the distance an electron travels between transistors, the faster it can get there, and that means better performance.

Copper chips are down to 0.18 microns today and are expected to eventually drop to below 0.13 microns.

On the other hand, the distance between components in today's aluminum chips, such as the Pentium processor, is 0.25 microns.

The next generation of Pentium processors will reduce that measurement to 0.18 microns, and developers plan to reduce that even further to 0.13 microns.

At that point, aluminum will hit a performance wall.

And that limitation is forcing manufacturers to find alternatives to aluminum. A chip can hold only so many transistors, and at a certain point, transistors lose their ability to conduct effectively, says Amir Ahari, an analyst at Framingham, Mass.-based International Data Corp.

But there are some drawbacks with copper technology, according to Michael Slater, an analyst at the "Microprocessor Report" newsletter.

Copper typically requires putting in extra layers of material to isolate it from the silicon in the chip

This multilayering requires different manufacturing and design processes, which means an initial start-up expense for vendors choosing to make copper-based chips.

Jacobs is a freelance writer in Dover, N.H. She can be reached at ajacobs777.aol.com.

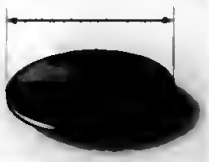
DEFINITION

A copper microprocessor uses copper to connect transistors. Copper is a better conductor of electricity than aluminum, the metal used in most chips today. Copper chips offer faster performance and lower power consumption and are smaller.

BY THE NUMBERS

How small is a micron?

One *micron equals .001 mm. The diameter of an ordinary penny is about 18,500 microns.*



If this were a copper chip, you would need to leave 0.18 microns of space between each 0.18-micron copper wire – and this penny could fit more than 51,350 wires.

AT A GLANCE

What the vendors are doing

According to analysts, vendors aren't rushing to manufacture copper chips because it's a very complex and expensive process. Following are the plans of some major vendors:

- **IBM**
  Debuted its PowerPC 750 copper based chips in September based on 0.18 micron technology
- **Apple Computer Inc.**
  Introduced G3 computers, which feature copper based PowerPC processors running up to 400 MHz
- **Motorola Inc.**
  Motorola and Advanced Micro Devices Inc. signed an agreement last summer to codevelop copper chips
- **Intel Corp.**
  Plans to implement copper based chips but believes the technology won't be competitive until the next generation of chips based on 0.13 micron technology come to market

MORE ONLINE

For more information on copper microprocessors, visit our Web site.
www.computerworld.com/more

Are there technologies or issues you would like to learn about in QuickStudy? Please send your ideas to QuickStudy editor Stefanie McCann at stefanie_mccann@computerworld.com.

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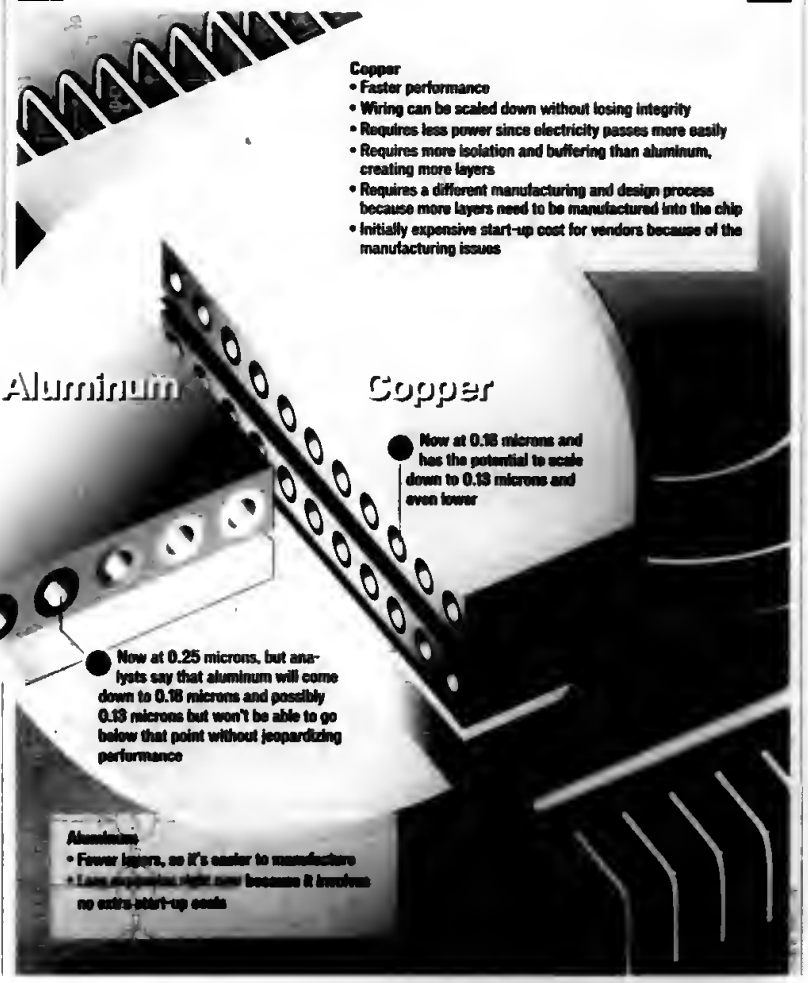

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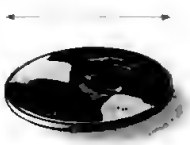
How small is a micron?

One micron equals .001mm. The diameter of an ordinary penny is about 18,500 microns.



If this were a copper chip, you would need to leave 0.18 microns of space between each 0.18-micron copper wire – and this penny could fit more than 51,350 wires.

AT A GLANCE

What the vendors are doing

According to analysts, vendors aren't rushing to manufacture copper chips because it's a very complex and expensive process. Following are the plans of some major vendors:

- **IBM**
  Debuted its PowerPC 750 copper-based chips in September based on 0.18 micron technology.
- **Apple Computer Inc.**
  Introduced G4 computers which feature copper-based PowerPC processors running up to 400MHz.
- **Motorola Inc.**
  Motorola and Advanced Micro Devices Inc. signed an agreement last summer to codevelop copper chips.
- **Intel Corp.**
  Plans to implement copper-based chips but believes the technology won't be competitive until the next generation of chips based on 0.13 micron technology come to market.

MOREONLINE

For more information on copper microprocessors, visit our Web site www.computerworld.com/more

Are there technologies or issues you would like to learn about in QuickStudy? Please send your ideas to QuickStudy editor Stefanie Met zinn at stefanie_metzinn@computerworld.com.

JOE FIRMAGE IS OUT THERE

He left the $228 million Internet company he founded to spread the word: UFOs have visited us. Is he a true believer? Is he a charlatan? Is he a crackpot? Hell, is he right? By Sam Witt and Sean Durkin

JOE FIRMAGE does not seem crazy. His words do not echo like the proclamations of a zealot but rather are delivered in a controlled, deliberate, boardroom fashion. They sound like the words of a man who was forming a strategy for building Web sites one day — and forming a strategy for a techno-spiritual evolution the next. Somehow, Firmage's manner makes the progression seem natural.

Joe Firmage wants you to believe what he believes. To wit:

"You are a *homo sapien* animal, sitting at the top of an 8,000-mile-wide clump of geology, staring into an electronic communications system called 'the Internet' . . . 2,000 revolutions around this globe since the birth of a man named Jesus. That's a more accurate picture of you in the eyes of the cosmos right now."

Joe Firmage says that without blinking.

Joseph P. Firmage, 28, founded USWeb, a leading Internet consulting firm, in 1995. Like his previous ventures, the company prospered wildly. For fiscal 1998, USWeb posted revenue of $228 million — a 100% increase over the previous year.

During that year of intense growth, Joe Firmage was moonlighting — working on the Kairos Project, a Web site and book (due this summer) about human evolution and extraterrestrials.

Word got out. In January, Firmage posted his 700-page manifesto, called "The Truth" (*www.thewordistruth.org*), which evokes both *Star Trek* and the New Testament. In the manifesto, Firmage asserts that extraterrestrials not only have visited us, but also have influenced our technological development.

A few days later, he resigned.

So is he a "crackpot," as USWeb/CKS (the companies merged shortly before Firmage left) board member Gary Reischel recently pronounced him, summing up what he'd heard from colleagues and investors? Or is he a maverick entrepreneur with disturbing ideas who is paying with his credibility for the strength of his convictions?

Quiet Certainty

Joe Firmage does not look like a man who's spent 3 million of his own dollars researching extraterrestrials. In tony Los Gatos, Calif., in a living room almost too small for its opulent furniture, he speaks without flourish, with pregnant pauses and sustained eye-blinks as much as with bold words. He wears a discreetly trimmed beard and is dressed casually, as per the uniform of Silicon Valley executives (including mandatory cell phone, which periodically interrupts an interview). Out front in the driveway, a cardboard Jesus hangs from the rearview mirror of his red Corvette.

Firmage is both savvy and candid about all the attention the world is paying him. "I've been very open to the media for 10 years now in a business context," he says, but "I've given nobody reason to question my sanity until six months ago.

Firmage, page 80

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right

IBM

Continued from page 77

I'm just starting to get the PR structure to deal with the media."

When he first published his manifesto, the news stories tended toward predictable snickering, but Firmage says he believes "it's beginning to shift in the right direction. *Rolling Stone* is doing a good piece on us. *Time*'s already done something. I'll be on *Dateline [NBC]*. I just spent the whole day with ABC News."

How does he expect those TV interviews to go? "Everything can and will be used against me," he laughs.

Early Achiever

Firmage was born and raised in Salt Lake City, where his family belonged to the Church of Jesus Christ of Latter-day Saints ("It's a very cosmic thing," he says of the Mormon church). After finishing high school in a mere two years, a scholarship in physics led him to the University of Utah. Firmage left college in 1989 after his sophomore year to form his first venture: Serius, which began as a Macintosh program for his mother's greeting card business and quickly grew into a database software company. Result? "Within six months," Firmage says, Serius "closed $7 million" in revenue.

> "The UFO phenomenon is absolutely legitimate." — Joe Firmage

In 1993, Firmage sold the company to Novell Inc. for $24 million and a vice presidency. In 1995, he left to found USWeb.

According to Novell public relations manager Jonathan Cohen, the company considered Firmage a "valued contributor. ... We wouldn't comment on his beliefs or cultural activities."

The Real Deal

"I am convinced that the UFO phenomenon is absolutely legitimate," Firmage says. "I have sat across the table from people whose credibility is unimpeachable." People who have described to him in great detail their experiences as alien abductees, he says. Asked to mention names, he replies, "I can't."

The cultural activities Cohen mentions can be traced, Firmage says, to a vision he had early one morning in 1997, shortly before USWeb's initial public offering. A mysterious figure clad in white hovered over his bed, he recalls. The two shared a brief conversation about space-time travel. When asked by the visitor why he should be given the chance to travel in space, Firmage said, "because I'm willing to die for it."

The following year was "the busiest time of my professional life," he says. "I held a 12-hour-per-day job at USWeb, with Kairos [the UFO project] growing to four to six hours per day. I had a simple system: daytime: USWeb; evening: Kairos."

A year after the visit, Firmage posted his manuscript online. A media flood followed. Then came investor jitters.

"For the record, I chose to step down," Firmage says. "And *off* the record, I chose to step down. That's the truth. I was not forced out. Now, had I not chosen to step down, I could well have been forced out. I've been 10 years in this valley. I know how the game is played."

Is there no room for visions like his in Silicon Valley? "I would like the answer to be yes. But right now ... no." Maybe that's why, Firmage claims, there are several Silicon Valley leaders hiding their own belief in extraterrestrials (he declines several times to mention names). Why the need to remain quiet? "Well, look what happened to me."

Man of Principle?

"Frankly, I admire the guy," says author and columnist Robert Cringely. "In a world filled with weasels who call themselves entrepreneurs and who will corrupt their business plan to fit whatever is this week's hot technology, Firmage stands out as a man of principle."

And now out of the boardroom, Firmage is free to discuss those principles. "I can say things I could never say" when at the helm of USWeb, he says. "Every single executive of a public company has to live that way." He says Steve Jobs and Bill Gates are exceptions who "have a measure of freedom that anybody just one notch down on that ladder does not have."

One of Firmage's goals, he says, "is to make things that have not been permitted to be spoken in open company, speakable. Things that deal with anomalies. Things that deal with spirituality."

Things like zero-point energy and gravitational propulsion. Those controversial theories of physics underpin Firmage's belief in space-time travel. Zero-point energy refers to a theory that energy can be created from nothing, rather than matter. Gravitational propulsion is based on the concept that the force of gravity can not only be harnessed, but also engineered. Combined, the two provide the foundation for spacecraft capable of warp speeds.

Firmage's beliefs have backers. John Peterson, a futurist and head of the Arlington Institute, a nonprofit research group in Arlington, Va., is adamant about zero-point energy. "There's no question but that it's real." And Charles Ostman, senior fellow at the San Francisco-based Institute for Global Futures, says that, in 25 to 50 years, "we probably will have things like antigravity travel, time-space continuum manipulation — all the usual precursors [to] getting around the universe."

Not all scientists agree. In fact, not all seekers of extraterrestrials agree. Dan Wertheimer, director of the University of California at Berkeley's Search for Extra-Terrestrial Intelligence program, calls Firmage's ideas "pretty wacko ... you'd be hard-pressed to find any scientist that thought there was an ounce of credibility in his ideas."

Visionary or Crackpot?

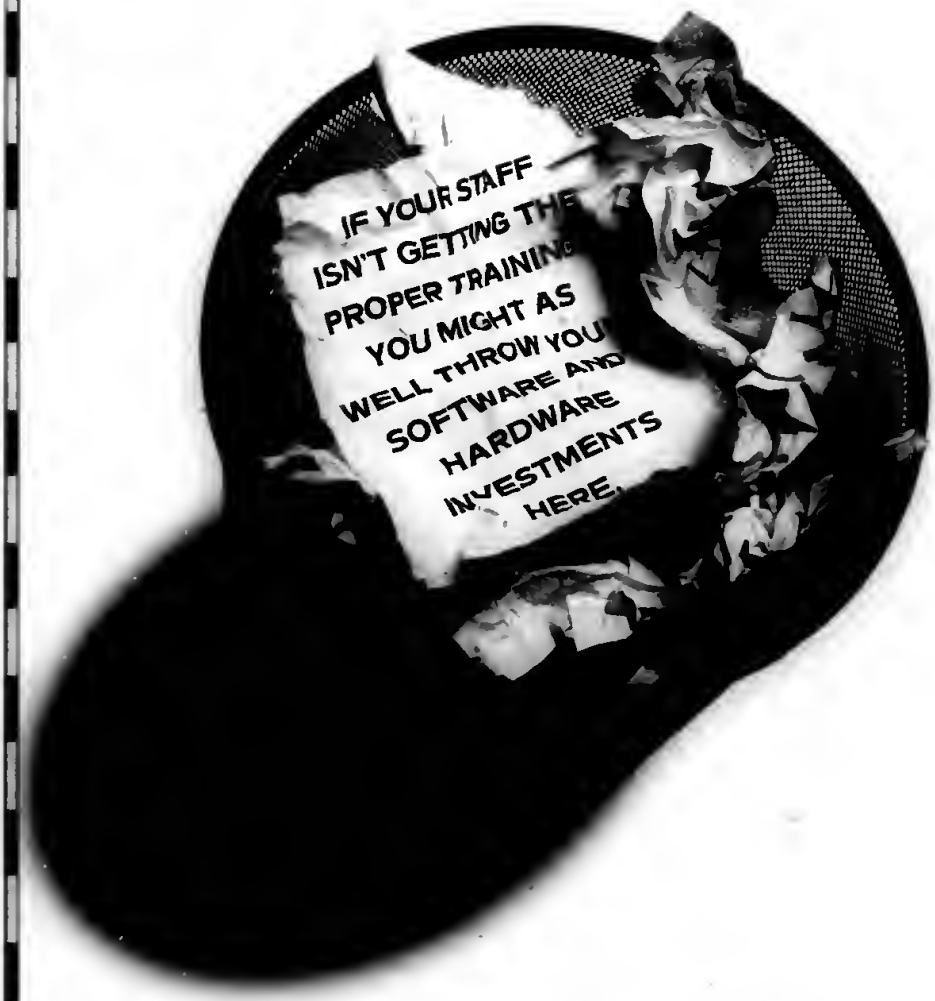
You'd also be hard-pressed to find a Silicon Valley CEO who doesn't drone on about vision and evolution and progress. If nothing else, Joe Firmage's story is the story of what happens when the vision becomes intensely personal, when public relations buffers melt away and the board runs for cover.

It's impossible not to wonder at Firmage's motivations. Is this story about a yearning for liberation from the corporate structure? (When USWeb and CKS merged, Firmage was not named CEO of the combined company.) Is Firmage after a piece of history? Is this a publicity trick, a plan to get richer? (After all, that cell phone keeps ringing.)

Or is this as simple as one man telling his version of the truth — and paying for it dearly:

"What happens in the history of a world when its most advanced beings for the first time gain the power to break through its own gravity well?" Joe Firmage asks. "I'll tell you what it's called; it's called birth. If Earth is a living being, and we are created by the Earth, and we one day gain that power, the power to touch the fabric of space-time itself, and use it, tap it, to voyage — is that not literally a birth? And is not the history of humanity an incredible drum roll to the opening of the first real frontier? That's the vision that I see." ◗

Witt and Durkin are freelance writers in San Francisco. Their partnership is called Too Many Stars. Their Internet address is toomany@sirius.com.



According to a Gartner Group study, employees without formal training use less than 25% of their applications. On the other hand, trained users can increase productivity more than 165%. And those numbers can make a big difference next time you need to get a budget approved.

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Birth of Integrated Circuits

BY LESLIE GOFF

THE FAIRCHILD Eight weren't thinking a lot about their legacy in 1958. They didn't see that they were on the verge of spawning a new industry, of planting the seed that would grow into Silicon Valley.

Had it not been for their research and development that year, the computer industry — our jobs, our way of life — might look quite different. Their ideas about how to efficiently mass-produce silicon-based integrated circuits, either directly or indirectly, made possible nearly everything that information technology is capable of today.

But at the time they were focused only on making reliable transistors and finding a way to combine many of them into a single device using silicon instead of the then-standard material, germanium. Silicon could withstand high temperature better than germanium.

"No one had any strong feeling that these devices were going to take over the world," says Jay Last, one of the eight. It wasn't until the mid-to-late 1960s that the Fairchild Eight's true legacy began to take shape.

In 1958, "[We] were all very busy and we never had any time to sit back and reflect," says Julius Blank, a Fairchild co-founder who now is a director at Xicor Inc. in Milpitas, Calif., a manufacturer of nonvolatile memory devices.

Last, Blank, Eugene Kleiner, Robert Noyce, Gordon Moore, Jean Hoerni, Sheldoo Roberts and Victor Grinich were a diverse group of young scientists, all in their mid-20s to mid-30s. They had come to the San Francisco Bay area in 1956 to work for William Shockley, who had won the Nobel Prize that year with John Bordeen and Walter Brattain for the invention of the transistor at Bell Laboratories. But the eight, disagreeing with Shockley over technology and management issues, left his start-up, Shockley Semiconductor, en masse in late 1957 to found Fairchild Semiconductor. Shockley called them the "Traitorous Eight."

The creation of Fairchild Semiconductor would establish a model for entrepreneurs for the rest of this century. Each of the men was promised stock options, a then unheard-of arrangement. They dispensed with job titles and had an open working relationship.

"None of us went to business school, but we turned out to be pretty good managers after all," says Kleiner, who later contributed to the expansion of Silicon Valley as a co-founder of the venture capital firm Kleiner, Perkins, Caufield & Byers. "It was an informal, hard-working and effective group."

With $3,500 in seed money from Fairchild Camera, they secured a building on Charleston Road in Palo Alto, Calif., and set about building from scratch the equipment they would need to create silicon-based integrated circuits.

By 1958 they were making their own transistors, and Hoerni was perfecting the planar process, which ultimately enabled the team to manufacture integrated circuits using silicon instead of germanium. When Jack Kilby at Texas Instruments, that year introduced what's regarded as the first integrated circuit using germanium, they felt affirmation rather than competition.

"We had the benefit of the planar pateot, which enabled us to do this thing more monolithically than [Texas Instruments] at the time," Blank says.

Hoerni patented the planar process a year later, and Noyce constructed the first integrated circuit on a layer of silicon. An industry had been born.

"The first 50 years of transistors were very similar to the first 50 years of the Gutenberg press," says Last, a venture capitalist and publisher of fine-art books who now lives in Beverly Hills, Calif. "They happened 500 years apart, and they trace almost the exact same path: Both became mature industries within the same amount of time. The [integrated circuit] changed the world the way the Gutenberg did — hut even more so — by giving us this enormous ability to communicate." ■

Goff is a frequent contributor to Computerworld. Contact her at lgoff@ix.netcom.com.

MOREONLINE

For more information on the Fairchild Eight and their legacy, visit our Web site.
www.computerworld.com/more

Technology Happenings

1958

The **Whirlwind project** is extended, and development begins on an air-traffic control system.

Bell Laboratories develops a **modem data phone**, allowing telephone lines to transmit binary data. Bell also develops the **laser used in fiber-optic communications.**

The IBM 709, the last valve-powered series of computers, is introduced.

The Univac Model 80, the first commercial transistor computer, is introduced.

Seymour Cray designs the CDC 1604 for **Control Data Corp.** to supply the growing supercomputer market.

The **Algol** programming language is developed.

Born in 1958

Steve Case, AOL founder

Donna Rice, author of Kids Online: Protect your Children in Cyberspace

Other Notables

Elvis' pay as a private, U.S. Army, Armored Division: $99.37 per month

Elvis' recording and related earnings in 1958: $2 million

A 1958 Gallup Poll says 88% of Americans own a television

Best Picture: *Gigi*

- **Explorer I, the first U.S. satellite, is launched**
- **Alaska becomes the 49th state**

President Eisenhower orders the U.S. Marines to Lebanon, responding to Lebanese President Camille Chanour'a request, a result of perceived threats from Muslims

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■ Flashback is produced with the assistance of the Computer Museum History Center in Mountain View, Calif

AS/400: SUBSTANCE OVER STYLE

Y2K conversion and system upgrades are driving up both demand and salaries for those with AS/400 skills

BY CARLA CATALANO

THE IBM AS/400's mainframe image can't compete with the glamorous allure of the PC. But, according to Nate Viall, president of Nate Viall and Associates, an AS/400 recruiting and national industry research firm in Des Moines, Iowa, the AS/400 is a workhorse that more companies are making their server of choice.

The installed base for the AS/400 is "huge" right now, an enormous market with lots of opportunities and little career risk, Viall says. People finally are recognizing the AS/400 for its reliable operating system and its ability to seamlessly connect to other network devices, he adds.

Companies rushing to head off year 2000 glitches have generated even more traffic toward the AS/400. Another reason for the AS/400's popularity is its low cost of ownership and operation, says Steve Evans, director of informatioo systems at the Professional Golfers Associatioo (PGA) Tour in Pontevedra, Fla. "We use two AS/400s and a bunch of Wiodows NT servers. No one is dedicated to managing the AS/400, yet we have three people focused oo maintaining the NT servers," he says.

The most valuable employees are those who know more than one technology — and that's especially true for those employed at smaller companies in which most projects require a "mixture of technologies," Evans says. Most important, he says, is to "focus on business objectives."

To keep yourself marketable by learning about new products and skills that are transferable, "my advice for RPG programmers is to focus on technologies like Java [the AS/400 is migrating toward Java] that target both the AS/400 and other platforms such as NT," says Jim Duggan, research director for application development at Gartner Group Inc. in Stamford, Conn.

Also valuable for AS/400 programmers: Internet-related skills, such as those employing Java and the Web language HTML; object-oriented languages and object-oriented design; event-driven front ends and object-oriented skills such as Visual Basic; and abilities in computer-aided software engineering development and enterprise planning.

System Fluency Needed

Career-conscious professionals can beef up their AS/400 résumé by making sure their debugging and programming skills are sharp and that they understand the architecture, file system, capabilities and nuances that make the AS/400 different from other platforms, says Steve Fillipi, manager of AS/400 OneWorld Server at J. D. Edwards & Co. in Denver. Fillipi, who is searching for an AS/400 engineer with C and C++ skills, admits it's a challenge to find qualified AS/400 people. "Our fallback approach is to recruit people with good programming skills and grow our own AS/400 expert from there," Fillipi says. He typically trains people on the server team so they gain detailed, critical skills, then moves them to other areas of the company to broaden the company's overall AS/400 strength.

"Recruitment is a two-way street," Evans says. "We do a lot of reference checking, a large amount of interviewing, and we encourage candidates to ask questions of staff as well." The PGA Tour staff has remained stable for the past two years, which Evans believes has more to do with the company than the technology.

"I'm paying 20% to 30% more for an AS/400 programmer than I would for a programmer with similar skills because inventory is so low," says Steve Cataldo, president of Wilmington, Mass.-based Software Concepts Inc., an authorized AS/400 reseller that develops distribution and manufacturing software strictly for the AS/400.

Salaries for experienced AS/400 programmers are increasing, except in the public and education sectors, where pay remains at the low end of the spectrum, according to Viall, who maintains one of the most comprehensive salary surveys specific to the AS/400. Although Evans agrees that there's been an "escalation of salaries in what has been a flat market for a long time," he doesn't attribute it solely to the AS/400 market, but to the overall IT labor market.

"Everybody's been predicting the death of the AS/400 since its conception, but it never seems to come about," Cataldo says. "You'll see a shift in technology from the RPG programmer to the Java programmer, but the AS/400 can accommodate both styles."

JUST THE FACTS

Industrial Wage Average

Average AS/400 salaries by industry:

INDUSTRY	SALARY
Software/contract	$56K
Energy	$53K
Retail/mail order	$50K
Manufacturing	$48K
Distribution/ wholesale	$47K
Agricultural/ grain/food	$46K
Banking/financial/ insurance	$46K
Transportation	$46K
Media	$45K
Business services	$43K
Health care	$43K
Education/ government/nonprofit	$41K

SOURCE: NATE VIALL AND ASSOCIATES DES MOINES, IOWA

Real Competitor

The AS/400 is a fierce competitor of Windows NT Server because it offers seamless connections to network devices without the problems associated with multivendor products like NT Server, such as upgrades, vendor compatibility and so on, Cataldo says. AS/400 skills also offer job security, according to Cataldo. "Programmers can expand their skills to exploit new server-based functionality like serving op Web pages, E-mail, running client/server applications . . . while preserving past skills related to transactioo processing," he says.

Cataldo says a programmer trained on the System 38, the precursor to the AS/400, can write productive code today on the AS/400. And because the AS/400 still is popular as an economical transactioo processor, those early skills won't become obsolete, he says.

Catalano is a freelance writer in Hopkinton, Mass.

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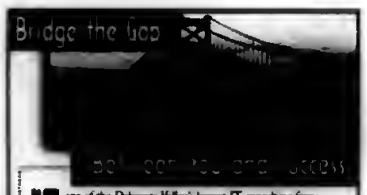
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At IMI, one of the Delaware Valley's largest IT consulting firms with over 3,200 employees, we know that technical expertise drives success. That's why we provide ongoing education, tuition reimbursement and career growth opportunities. Currently, we have several positions available for AS/400 professionals to work at the Wilmington area. We keep our Fortune 200 customer base connected to the future. Connect with yours at IMI.

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PROGRAMMER/ANALYST - From requirements develop specifications & provide analysis, design, development, testing, implementation & documentation of software utilizing IEF CASETools, MVS, OS2, DB2 & structured analytical design & development methodologies. Req. 4 yrs exp in job or related EDP occupation. Exp. in related occupation must incl IEF CASETools, MVS, OS2, DB2 & structured analytical design & development methodologies. $47,530/yr, 40hrs/wk, Mon-Fri, 8am-5pm. Job Site: Dallas, TX. Apply at the Texas Workforce Commission, Dallas, Texas or send resume to the Texas Workforce Commission, 1117 Trinity, Room 424T, Austin, Texas 78701. J.O.#TX0611736. Ad Paid by An Equal Opportunity Employer.

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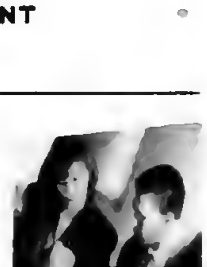

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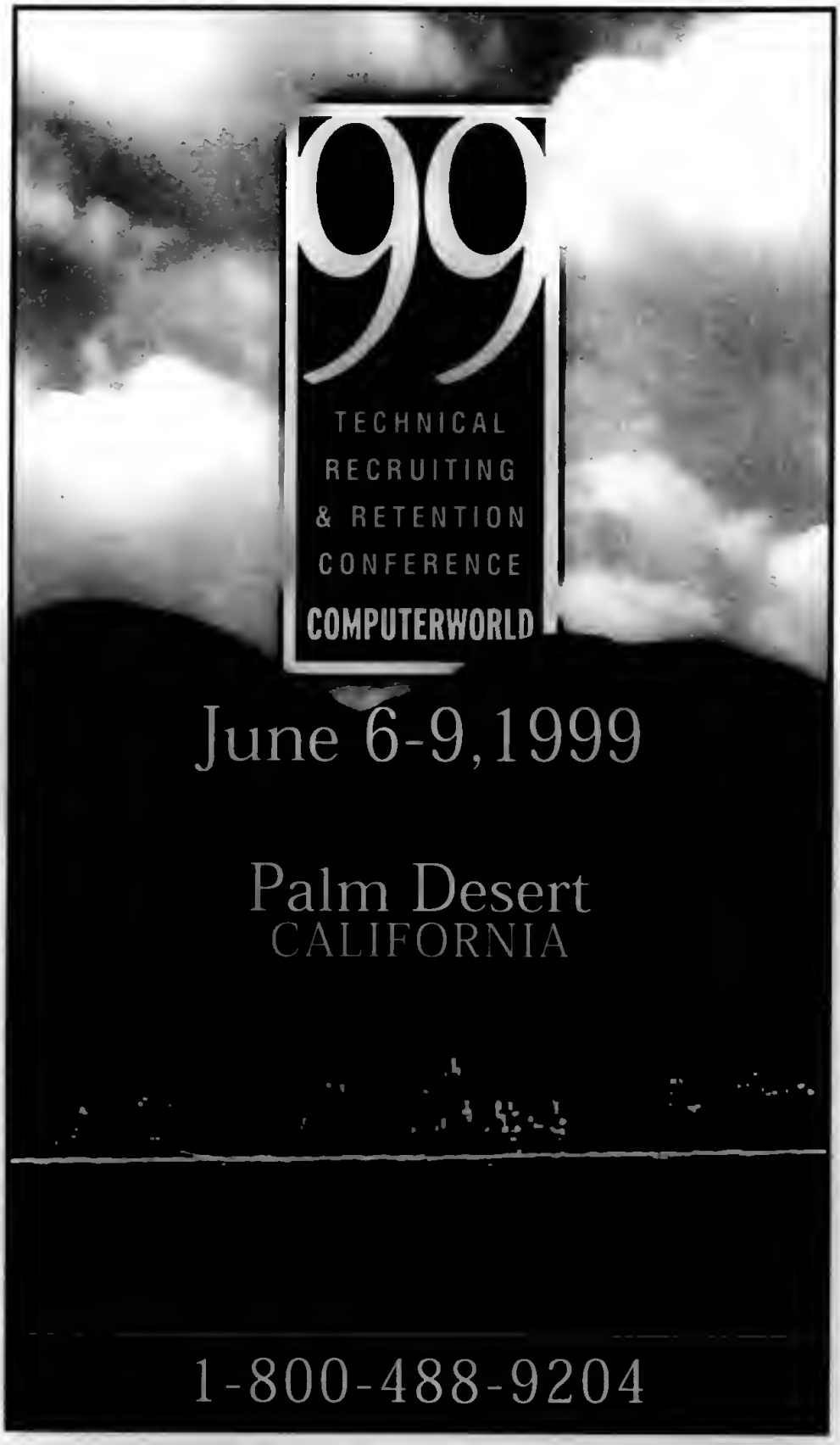

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Programmer Analyst: Monday through Friday 8:00 a.m. to 5:00 p.m. 40 hours per week. $47,780.00 annually. Requirements: a Bachelor of Science degree in Management Information Systems, Computer Science or Electrical Engineering and one (1) year of experience in the position being offered or one (1) year of experience in the related occupation of Programmer Analyst. As part of the one (1) year of required experience in the position being offered or in the related occupation, the applicant must have had experience in: requirements analysis, design, development, implementation, and enhancement of software systems to support functions of business operations; had experience in designing, developing and implementing software to support different databases, including Oracle, Ingres, Sybase, and Informix; and had experience developing warehousing systems in a UNIX environment using the C programming language. Applies principles of computer science and management information systems in designing and implementing significant enhancements to the company's advanced warehouse management software systems to ensure that the systems are reliable understandable, maintainable, efficient, and portable. Performs requirements analysis for enhancements to the company's standard software products. Produces system level documentation in accordance with department standards. Develops user documentation suitable to hand over to a technical writer. Performs preliminary designs for enhancements to the software systems. Produces program specifications according to department standards. Participates in estimating software product enhancements. Performs integration testing for functional areas of responsibility. Develops and maintains Perl programs for doing various functions like system startup and shutdown, purging, reporting and make/migration tools. Designs, develops and maintains industry standard screens using C ESQL and C-Scape. Develops applications which access a C-tree Database using IQ. Develops and maintains radio frequency applications for use with LXE, TELZON, SYMBOL and TEKLOGIC RF terminals. Interested applicants submit two (2) resumes to: Mike Brooks/Gerald Goleith, DWE-ALC, P.O. Box 7972, Madison, Wisconsin 53707-7972. WI Case File Number #C100613. **AN EMPLOYER PAID AD**

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Software Consultant to fine tune & improve variety of sophisticated s/ware implementation projects; analyze clients system, consult with client to define needs & problems; analyze, design, test, implement & develop various applications & db/base to meet client needs; test new reports, write code changes, develop applications, analyze & design new applications; analyze, design, develop, implement, maintain & enhance computer applications systems using Oracle Visual Basic, FoxPro, PL/SQL, Pro*C & Novell Netware. Reqs. Master's in Comp Sci, Computer Electrical or Electronics Engg, Comp Info. Systems, Comp Applications, Mathematics or its foreign educ equiv., 2 yrs exp in job offered or 2 yrs related exp such as Computer Instructor or Systems Analyst. Related exp must include developing, testing & implementing systems using Oracle, Pro*C, PL/SQL & Visual Basics. $29.28/yr, 40 hrs/wk, OT as reqd, 8a-5p. Send resume to MJC/ESA, P.O. Box 11170, Detroit, MI 48211-1170, Ref #108198. "Employer Paid Ad"

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Software Engineer, Rosemont, IL and other client locations. Analyze, design, develop, modify, enhance, test, debug, implement applications in an IBM Mainframe environment using IBM Mainframe management productivity and other tools DB2, CICS, VSAM and COBOL. Req'd: Bachelor's degree in Comp. Sc., Comp. Sc. Engg, Comp. Engg., Mathematics Engg and 3 yrs of exp in the job duties or in Computer software development (e.g. Programmer, Programmer Analyst, Systems Analyst, Software Engineer, etc.). 3 yrs of the exp. must be with the IBM Mainframe environment, management, productivity and other tools, (e.g. Xpediter) DB2, CICS, VSAM, COBOL. The experience may be concurrent. M-F, 8:00am to 5:00pm, 40hrs/wk, $59,000/yr. Must have proof of legal authority to work permanently in the U.S. No Calls. Send 2 copies of both resume and cover letter to: IL Dept. of Employment Security, 401 South State St. - 7 North, Chicago, IL 60605. Attn: Lydia Clarke. Ref # V-IL 20571-E. An employer paid Ad.

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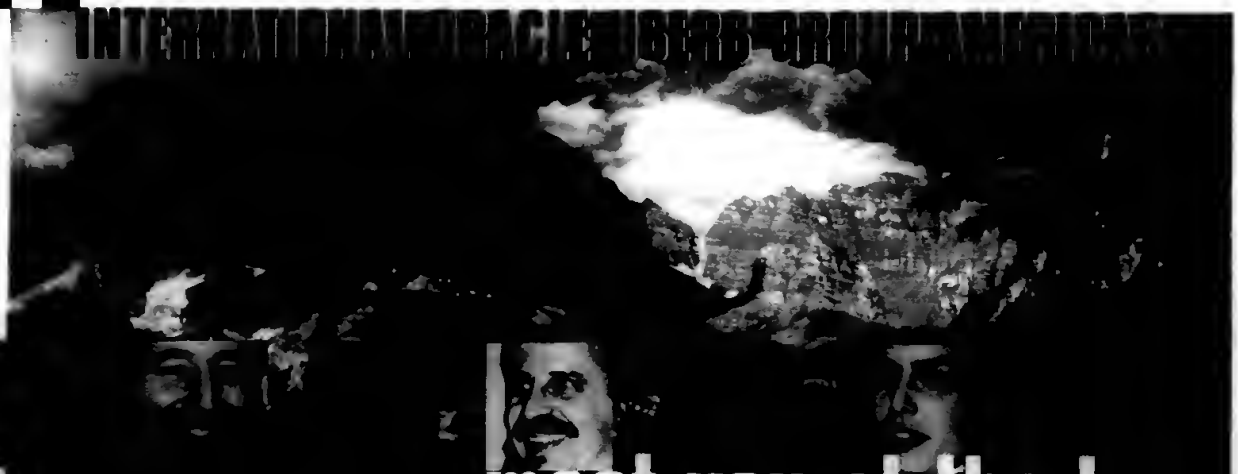
Respond to Tom Lucas, National Instruments Corp., 11500 N MoPac Expwy, Austin, TX 78759. Please reference job code: ISW



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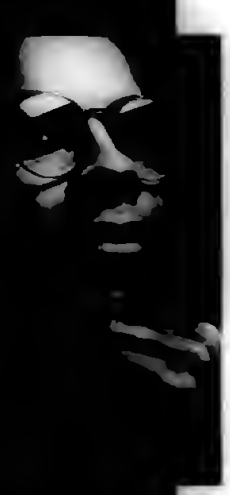

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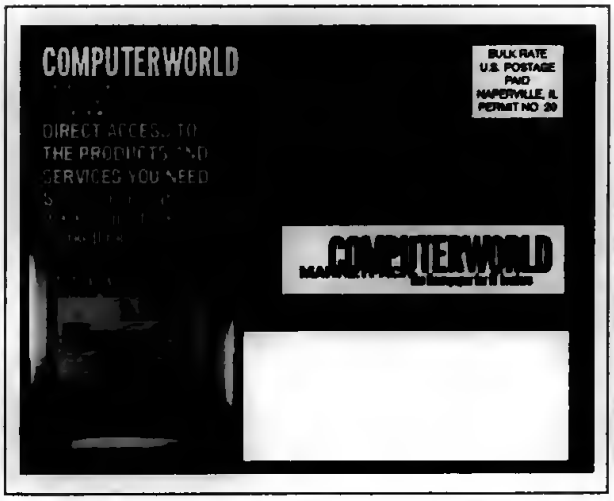

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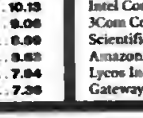
INTEL HITS DIP IT EXPECTED

Slower growth reflects PC market, Nasdaq, not antitrust case

BY LAURA HUNT

INTEL CORP.'S stock took a bumpy ride last week, following downgrades from two securities firms that cited lower earnings growth for the chip maker.



NationsBanc Montgomery Securities LLC in New York downgraded Intel (Nasdaq:INTC) from "Buy" to "Hold" last Tuesday; Donaldson, Lufkin & Jenrette Inc. (DLJ) changed its recommendation from "Buy" to "Market Perform." The stock had suffered losses the five previous days, following a Feb. 23 close of 134-1/4 (see chart).

The lower growth wasn't unexpected. NationsBanc called Intel stock "dead money at best" going into the third quarter last fall, predicting that Intel's earnings growth would slow for several reasons: lost market share to Advanced Micro Devices Inc. (NYSE:AMD), lower demand and prices for chips and a slow transition to the firm's new Pentium III processor.

Analyst Wendy Abramowitz at New York-based Argus Research Corp. said Intel predicted the downturn. In its earnings report released in January, the company said it expected that its revenue and gross margin would be down for this year's first quarter.

"A lot of PC companies have seen slowing revenue growth, which implies a slowdown for Intel," she said.

Back to Normal

Michael Geran, at DLJ's Pershing division in Jersey City, N.J., called Intel's downturn a "return to normalcy."

"We've gone from absolute greed to absolnte fear in the sector," he said. "The glass has gone from half-full to half-empty."

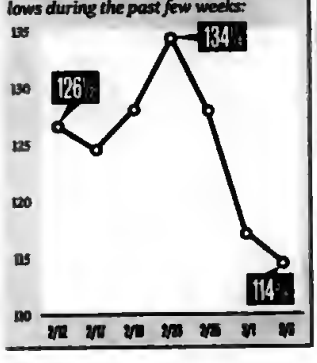
Intel's prices also reflected the Nasdaq Stock Market Inc.'s overall performance in February, analysts said. Nasdaq was down 8.5% for the month.

Meanwhile, as with Microsoft Corp. (Nasdaq:MSFT), whose stock hasn't seen any ill effects attributable to its antitrust case, Intel's upcoming antitrust trial (see story, page 4) also had no bearing on the recent market activity, Abramowitz said.

Intel's stock closed at 114-3/8 late last week, compared with a 52-week high of 139-3/8 and a 52-week low of 65-15/16. "This is a good buying opportunity," Abramowitz said.

Gettin' Queasy

Intel's stock has seen some highs and lows during the past few weeks:



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SOFTWARE OFF -1.4%					
ADBE	57.87	22.62	Adobe Systems Inc.	39.75	0.50	1.3
AZPN	58.87	6.12	Aspen Technology Inc.	41.38	0.56	1.4
ADSK	49.62	21.62	Autodesk Inc.	42.38	0.62	1.5
BAAN	47.75	11.38	Baan Co. N.V.	21.75	0.44	2.1
BDSX	34.62	18.25	Barra, Inc.	26.12	0.62	2.4
BOBJY	82.50	8.12	Business Objects S.A.	37.94	0.13	0.3
CDN	58.00	19.12	Cadence Design Systems	25.88	0.38	1.5
CBTSY	63.87	8.00	CBT Group Plc	25.88	0.94	3.8
CHKPF	58.00	10.62	Checkpoint Software Tech. Ltd.	46.88	0.88	1.9
CTXS	107.50	9.87	Citrix Systems Inc.	46.38	0.75	1.6
CADNY	69.50	14.75	Cognos Inc.	30.38	0.25	0.8
CA	61.43	28.68	Computer Associates International Inc.	44.25	1.00	2.3
CPWR	30.18	11.43	Compuware Corp.	25.50	0.38	1.5
DCTH	56.87	8.75	Documentum Inc.	21.81	0.81	3.8
EFII	41.00	13.50	Electronic Arts Inc.	25.75	0.81	3.2
HNCS	87.12	21.50	HNC Software Inc.	24.81	1.25	5.3
IDTC	56.75	19.06	IDX Systems Inc.	25.38	10.13	28.5
IFMX	14.69	3.50	Informix Software Inc.	9.12	0.44	5.0
INTU	104.75	34.18	Intuit Inc.	88.18	1.37	1.6
JNNY	55.68	29.68	Jack Henry & Assoc. Inc.	50.25	0.18	0.4
JDEC	49.50	13.00	J.D. Edwards & Co.	44.75	0.75	1.7
LGTO	97.75	22.50	Legato Systems Inc.	56.63	2.31	4.3
MACR	47.50	11.06	Macromedia Inc.	37.62	1.06	2.9
MANU	84.37	8.12	Management Dynamics Inc.	14.87	0.63	4.4
MENT	15.68	5.43	Mentor Graphics Inc.	14.06	0.00	0.0
MSFT	139.63	79.50	Microsoft Corp.	134.18	6.31	4.9
NOVL	60.87	9.18	Novell Inc.	30.94	0.38	1.2
NTAP	84.00	12.75	Network Appliance Inc.	34.18	0.31	0.9
ORCL	49.18	12.25	Oracle Corp. (DE)	41.00	0.62	1.5
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SYMC	32.62	8.68	Symantec Corp.	17.00	0.00	0.0
SNPS	70.25	24.50	Synopsys	65.38	10.56	13.9
SCMI	88.87	8.50	Systems & Computer Tech. Ltd.	8.50	0.44	5.6
TMARF	56.50	3.25	The Baan Co. N.V. (L)	3.44	1.00	29.1
VMTY	58.75	5.00	The Ventana Corp.	17.12	0.56	3.4
TSAI	51.00	27.00	Trans Info. Assn.	50.50	0.31	0.6
VRTS	86.00	29.18	Veritas Software Corp.	77.00	0.81	1.0
WIND	34.43	17.00	Wind River Systems Inc.	22.00	0.18	0.8
TELECOMMUNICATIONS CARRIERS UP 1.2%						
ALT	68.87	47.00	Alcatech Corporation, plans	49.31	0.00	0.1
AT	58.00	38.25	Alltel Corp.	58.00	0.50	0.9
ATT	69.37	47.50	Ameritech Corp.	62.10	2.10	4.2
ANDW	29.37	18.37	Andrew Corp.	18.63	0.44	2.9
T	68.12	38.37	AT&T	58.75	4.06	5.6
BCE	86.87	29.62	BCE Inc.	60.00	0.00	0.0
BEL	61.18	40.43	Bell Atlantic	58.18	2.75	3.9
BLS	50.00	28.50	Bell South	45.00	0.13	0.3
CBN	21.56	0.00	Cambridge Cellular Corp.	20.84	1.75	9.2
CMCSK	78.43	32.62	Comcast	72.63	1.50	2.1
CQ	42.75	21.18	Comsat Corp.	29.00	0.18	0.6
CBS	18.06	37.87	Cox Communications Inc.	18.00	0.18	0.6
GSTRF	53.12	0.31	Globestar Telecom Ltd.	19.18	0.31	2.0
GTE	71.81	48.00	GTE Corp.	62.00	2.18	3.6
RNTL	38.18	19.37	Rogers Communications	28.81	1.18	3.8
SPRT	58.12	26.50	Sprint PCS	53.81	1.06	2.0
QCOM	78.00	39.75	Qualcomm	58.00	2.63	3.0
SBC	59.93	38.00	SBC Communications	58.00	1.00	1.7
FON	68.00	54.43	Sprint Corp.	64.00	0.63	0.9
TCOMA	72.18	28.43	Tele-Communications	68.81	4.44	7.0
TDS	86.25	58.62	Telephone and Data Systems	54.38	1.62	3.0
USW	68.00	46.81	US West	54.94	1.00	2.0
VIA	69.56	46.50	Viacom (B)	58.38	3.12	5.6
WCII	68.12	10.25	Western Communications Inc.	38.87	3.00	8.4
WCOM	68.75	31.50	MCI Worldcom Inc.	63.00	0.00	0.0
SERVICES OFF -0.9%						
ACXM	58.25	18.50	Acxiom Corp.	28.06	2.56	10.1
ACS	58.18	32.37	Affiliated Computer Servs.	42.25	0.81	1.9
AMSY	68.25	19.25	American Mgt. Systems	44.94	2.38	7.0
ADP	62.62	36.00	Automatic Data Processing	58.31	0.06	0.1
BSYS	57.56	34.00	Bisys Group Inc. (A)	58.18	0.00	0.0
CMTP	86.37	13.37	Cambridge Technology Prtnrs	24.00	1.50	6.6
CEN	68.00	22.50	Candlex	36.06	0.18	0.5
CBR	45.87	12.31	Cibar Inc.	29.06	0.25	0.8
CTP	22.25	10.75	Comdisco	14.00	0.50	4.2
CMRZ	50.75	17.50	Computer Horizons Corp.	13.00	1.00	12.0
CSC	18.87	18.25	Computer Sciences	68.31	0.44	0.7
DST	88.88	56.00	Dst Systems Inc.	62.62	1.50	2.5
EDS	54.00	18.43	Electronic Data Systems	48.00	1.44	3.1
FDC	68.31	18.00	First Data Group (D)	36.63	0.06	1.5
FISV	54.43	28.75	Fiserv	38.50	1.75	3.7
IT	41.75	17.31	Gartner Group	22.63	0.00	0.0
HEI	68.43	34.75	Hcia	38.38	2.00	7.0
NDC	66.78	68.18	National Data	68.13	1.00	2.0
PAYX	56.56	53.18	Paychex Inc.	47.00	0.00	0.2
PFIN	38.50	5.18	Personnel Group Worldwide	5.38	0.31	6.1
PSY	24.00	12.62	Reynolds & Reynolds	18.18	0.00	0.0
SFE	47.25	18.12	Safeguard Scientifics	68.44	10.00	1.3
SAPE	62.87	24.00	Sapient Corp.	64.00	2.13	4.7
SMS	68.50	68.06	Shared Medical Systems	68.75	1.00	0.0
SDS	45.06	21.00	Sungard Data Systems	68.00	1.75	0.0
SYNT	32.00	0.00	Syntel Inc.	17.06	0.00	0.0
TECD	69.12	18.50	Tech Data (L)	17.00	0.38	2.2
TSS	68.25	54.43	Total System Services Inc.	29.63	1.81	6.1
TSAI	51.00	27.06	Transaction Sys. Architects	68.00	6.31	9.0
NETWORK UP 1.2%						
COMS	18.18	22.00	3Com Corp.	24.94	6.63	21.0
ADCT	64.00	18.75	ADC Telecommunications Inc.	30.13	0.50	1.7
ANTC	26.50	11.50	Antec	25.00	2.31	8.4
ASND	68.37	30.00	Ascend Communications Inc.	18.68	2.50	9.9
BNPW	18.37	2.12	Bay Networks Inc.	18.00	0.00	0.0
CS	15.50	6.50	Cabletron Systems	8.06	0.06	0.8
CNWK	68.00	8.75	Cali Wel Enterprises	7.18	1.13	18.8
CSCO	117.50	68.12	Cisco Systems Inc.	108.63	0.44	0.4
ECIL	68.00	18.75	ECI Telecom	41.06	4.50	11.9
FORE	28.00	8.75	Fore Systems Inc.	18.75	0.13	0.6
HRS	56.31	27.50	Harris Corp.	29.00	1.50	5.0
GNW	57.87	30.31	Hughes Electronics/GM	47.06	0.63	1.3
ERICY	84.50	18.00	L M Ericsson	29.44	0.00	2.4
LU	100.00	34.06	Lucent Technologies	104.25	3.00	3.0
MATRF	7.75	1.75	Matra Networks	3.50	0.18	9.2
NCD	13.75	4.31	Network Computing Dev.	8.31	0.06	1.2
NWK	68.62	8.06	Network Equipment Tech.	8.00	0.18	2.2

CODE	52-WEEK	NAME	MARCH 5 7 PM	VOLUME CHANGE	VOLUME PCT CHANGE
SEMICONDUCTORS, CHIPS & EQUIPMENT UP 4.4%					
ALTR	78.75	46.00	Altera	118.75	11.81	11.0
AMAT	63.68	6.87	Applied Materials	88.38	3.44	4.0
ALTR	71.87	28.37	Altera	48.00	8.44	21.3
AMD	68.62	12.68	Advanced Micro	14.63	1.06	7.8
BRCM	78.06	31.50	Broadcom Corp.	68.00	4.75	7.5
ATML	68.00	11.81	Atmel Corp.	48.00	0.00	0.0
CMOS	68.00	68.81	Cmos Corp.	48.75	0.00	0.0
CYMI	68.00	68.81	Cypress Semiconductor	48.75	0.00	0.0
INTC	139.63	65.15	Intel Corp.	114.38	6.31	5.8
KLAC	68.00	68.81	KLA-Tencor Corp.	68.00	0.00	0.0
LSI	68.00	68.81	LSI Logic Corp.	48.75	0.00	0.0
MXIM	68.00	68.81	Maxim Integrated Products	48.75	0.00	0.0
MU	68.00	68.81	Micron Technology Inc.	48.75	0.00	0.0
NSCP	68.00	68.81	National Semiconductor	48.75	0.00	0.0
NVLS	68.00	68.81	Novellus Systems Inc.	48.75	0.00	0.0
TXN	68.00	68.81	Texas Instruments	48.75	0.00	0.0
XLNX	68.00	68.81	Xilinx Inc.	48.75	0.00	0.0
COMPUTER SYSTEMS OFF 0.0%						
AAPL	21.31	21.56	Apple Computer Inc.	0.00	0.00	0.0
ALSPF	10.75	1.00	Avalon Systems	5.38	0.00	0.0
CPQ	54.25	22.43	Compaq	48.50	1.44	4.4
DELL	71.81	7.00	Dell Computer	57.00	1.06	0.0
EMC	78.00	36.00	Emc Computer Corp.	64.00	0.63	1.0
GTW	68.00	68.12	Gateway 2000 Inc.	68.87	4.44	0.0
HWP	63.81	67.00	Hewlett Packard C.	67.00	1.06	1.6
IBM	18.00	68.18	International	46.81	0.38	0.0
IRM	190.75	38.38	Ibm	196.00	9.38	0.0
MCHP	28.75	0.00	Microchip	17.00	1.63	10.6
MOLX	48.62	68.37	Molex Inc.	68.25	0.00	0.0
SMCI	28.50	17.50	Supermicro Computer Corp.	25.63	5.25	0.0
SUNW	68.75	28.62	Sun Microsystems	108.00	5.75	5.0
TPCM	0.00	7.00	Tyrex Micro	0.00	0.00	7.5
UNISY	2.88	0.18	Unisys Corporation	7.50	0.00	2.4
WANG	38.37	18.18	Wang	28.38	0.00	2.7
INTERNET OFF -1.9%						
AMZN	108.18	12.75	Amazon.com	121.31	0.63	0.2
AOL	68.18	18.12	America Online	68.00	1.63	1.0
AMGN	68.00	52.50	Amgen Corp.	88.06	0.56	0.0
CSCO	82.00	9.75	Cisco Systems	63.50	0.00	0.0
CMGY	27.75	5.81	Cyber-cash Inc.	6.38	0.13	0.1
CMPT	28.87	4.62	Lycos Corp.	8.00	0.00	0.0
EBAY	68.62	5.00	E Bayes Group Inc.	43.38	0.00	0.1
INCY	57.00	18.00	Incyte Pharm.	18.25	0.81	0.6
INTM	68.00	14.87	Intimate	16.00	2.50	3.6
LCOS	68.38	18.87	Lycos Inc.	64.75	5.38	0.0
NSCP	68.00	68.50	Netscape Communications	48.31	0.00	0.0
PMTI	29.18	8.25	Open Market Inc.	8.38	1.18	0.7
PCLK	18.75	18.00	Quote Com Corp.	29.00	1.00	0.0
PSIX	68.18	1.50	Psinet Inc.	18.88	1.18	3.0
QCOM	3.00	0.25	Quote-a-Stock Corp.	0.34	0.00	0.0
SPNT	47.18	0.63	Security Dynamics	12.38	1.25	0.7
SPYR	38.25	7.81	Spyglass Inc.	28.25	1.68	0.0
YHOO	277.00	17.18	Yahoo Inc.	158.00	0.06	2.7
STORAGE & PERIPHERALS UP 0.5%						
ADPT	28.75	7.38	Adaptec Inc.	21.18	1.18	5.8
APCC	88.50	29.00	American Power Conversion	38.18	1.18	3.0
CAMM	24.50	10.00	Comm Inc.	18.75	1.13	6.2
DBD	52.00	18.12	Diebold Inc.	21.88	1.18	4.1
EMC	88.93	68.00	Emulex Corp.	88.63	0.00	1.3
EMC	108.88	34.00	Emc Inc.	104.75	2.18	2.0
IOMG	18.18	2.00	Iomega	5.38	0.00	0.2
LSTR	108.18	38.25	Landstars Inform Group Inc.	98.00	10.75	0.0
QNTM	29.43	18.18	Quantum	28.88	3.50	21.4
SEG	44.25	18.18	Seagate Technology	28.75	1.75	0.3
STK	54.18	88.12	Storage Technology	58.44	0.50	1.0
TDK	88.18	18.88	Tdk Corp.	68.44	1.50	2.5
WDC	68.00	68.00	Wyse	54.18	0.44	0.0

KEY: **(H)** = New annual high reached in period
(L) = New annual low reached in period

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Novell's Full-Serve Strategy

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SOURCE: COMPUTERWORLD RESEARCH, MARCH 1999

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SOURCE: FORD MOTOR CO., DEARBORN, MICH.

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ABC ABP

20th-Century Headlines

The Newseum in Arlington, Va., asked American journalists and scholars to select the 20th century's top 100 stories. The following are verbatim selections from the list:

31. First mass market personal computers introduced. (1977)

32. World Wide Web revolutionizes the Internet. (1989)

33. Scientists at Bell Labs invent the transistor. (1948)

42. ENIAC becomes world's first computer. (1946)

51. American scientists patent the computer chip. (1959)

97. Bill Gates and Paul Allen start Microsoft Corp. to develop software for Altair computer. (1975)

INSIDE LINES

NOW THAT'S SERIOUS SECURITY
Mind your **laptops**, Arthur Andersen workers. After a couple of thefts last week at the company's Chicago headquarters, its security department issued an e-mail warning to workers to keep their laptops locked down with cables attached to their desks. Any unchained portable computers spotted by security patrols – as opposed to thieves – will be **confiscated**.

OLD NEWS
What's the opposite of Internet time? Health care IT execs were fuming last week after a **U.S. Senate** committee singled out their industry as the worst prepared for year 2000. The Senate report included Gartner Group statistics that showed 64% of hospitals have no year 2000 testing plans, and 90% of doctors are clueless on year 2000. But those stats are **a year old** and aren't necessarily accurate today, the execs charged.

NOT YOUR USUAL HACK
Well, it made a good story. London's *Sunday Business* newspaper reported last week that crackers had seized control of a **British military satellite** and demanded a ransom. The Ministry of Defence denied the report – but you'd expect that, right?

However, it turns out the satellite's controls aren't on the Internet – just sending a signal to it would require **building a microwave tower** in southwest London, said Paul Beaver, a spokesman for military analyst Jane's Information Group. "You can't just move your satellite TV dish around," Beaver told the British Broadcasting Corp.

OVERHEARD
Direct Marketing Association CEO **Robert Wientzen**, on a proposed California law that will force companies to tell consumers exactly what information is collected about them and why: "We're calling it the bill from hell." . . The head of one Linux company, surveying the show floor at last week's **LinuxWorld Expo**: "They're like a big dysfunctional family that just came into money."

RUMOR MILL
Tired of waiting for Godot 5.0 – er, **Windows 2000**? So is Microsoft's BackOffice development team. Until the specs are finalized – or at least close to it – it can't put together a version of the BackOffice server that will be packaged with Win2K . . . **3Com Corp.** and **Siemans AG** are resolutely mum about rumors the German company will buy 3Com's division that makes equipment for carriers and service providers. 3Com reportedly will focus on its handheld Palm line and low-end networking. Siemens says it will spell out its strategy this week.

FRENCH WINDOWS BROKEN!
News services in France reported late last month that Microsoft's Windows 98 and Works 4.5 have failed government year 2000 testing. Small and Medium Businesses Minister Marylise Lebranchu said her ministry was **assessing Microsoft's "possible liability,"** adding, "It is extraordinary that a company which is supposedly at the cutting edge of technology has sold products which will not work after 2000."

Guess that makes our whole industry, um, extraordinary. News editor **Patricia Keefe** thinks so; e-mail your news tips and tidbits to her at **patricia_keefe@computerworld.com** or call (508) 820-8183.

CHANGE YOUR DASHBOARD ANY WAY YOU WANT

IS IT THE ULTIMATE in futzware or the ultimate in user-friendliness? Visteon Automotive Systems, a unit of Ford Motor Co., has developed a car dashboard that's actually a computer display panel that can be reconfigured in infinite ways. Move the fuel gauge, eliminate the oil-pressure display, enlarge the speedometer, change the colors or show Internet information. The high-definition display could be available in less than five years, Ford says.

THE HIGH-RESOLUTION dashboard display can be outfitted with a "backseat baby watcher" and navigational aids. "New features will be as easy to add as a new software package on a personal computer," the company says.

The 5th Wave

"I understand how the thumb is the pointing device, but why does THIS finger have to be the antenna?"

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